

Western Industry

October
1957

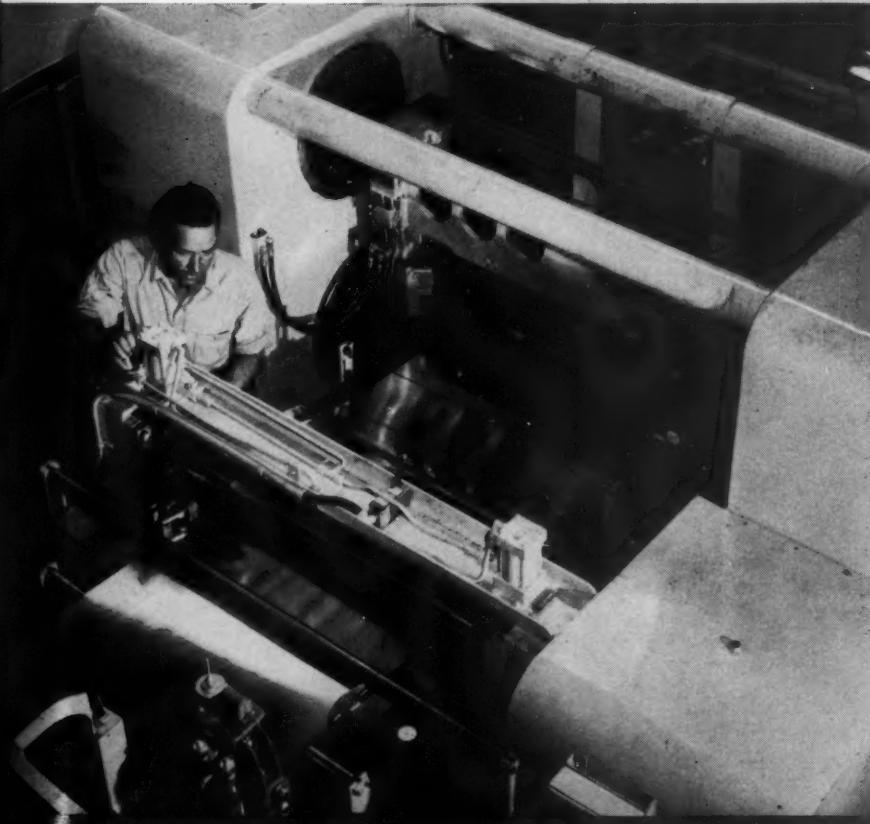
Vol. XXII, No. 10

HOW TO LEAD THE BEST BRAINS TO YOUR FIRM

... p. 48



"With an enormous demand for people of high and creative intelligence, industry today is competing for top brains. You can avoid the mad scramble by learning ...



SAFETY-MAKING STEEL. Only under "Safety-First" management can a company with private controls the key to top safety.

THE SAFETY
KNOW-HOW
YOU NEED

... for fire protection

(pp. 46, 54, 65)

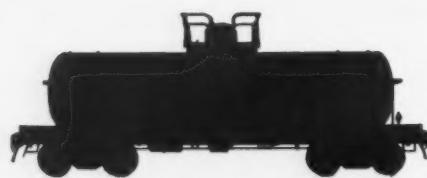
... for head-to-toe
personnel gear (p. 66)

IN 50 FREE
SAFETY MANUALS

For
FLUORINE
 gas or liquid



HYDROFLUORIC ACID
 aqueous or anhydrous



**INORGANIC FLUORINE
 COMPOUNDS**



see
GENERAL CHEMICAL

General Chemical's leadership in fluorine chemistry is well established . . . widely recognized. The inorganic fluorine compounds listed here are available now—in commercial or research quantities. Many others are under investigation, or can be produced readily if required. Whenever you need fluorine chemicals of any type—call *General Chemical*, industry's primary source of supply for elemental fluorine, hydrofluoric acid and the fluorine compounds produced from them.

FLUORINE
 Elemental Fluorine,
 Gaseous & Liquid

ACIDS

Fluoboric Acid
 Fluosulfonic Acid
 Hydrofluoric Acid, Anhydrous
 Hydrofluoric Acid, Anhydrous
 High Purity
 Hydrofluoric Acid, Aqueous
 Hydrofluoric Acid, Aqueous,
 Purified & Reagent
 Hydrofluoric Acid, Electronic

ACID FLUORIDES

Ammonium Bifluoride
 Potassium Bifluoride
 Sodium Bifluoride

ALKALI FLUOBORATES

Ammonium Fluoborate
 Potassium Fluoborate
 Sodium Fluoborate

ALKALI FLUORIDES

Ammonium Fluoride
 Potassium Fluoride,
 Crystal & Anhydrous
 Sodium Fluoride, Technical
 Sodium Fluoride, Reagent

**BORON FLUORIDE
 COMPLEXES**

Boron Fluoride Ether (Diethyl)
 Complex
 Boron Fluoride Phenol Complex
 Boron Fluoride Diacetic Acid
 Complex
 Boron Fluoride Di-n-Butyl
 Ether Complex
 Boron Fluoride Dihydrate
 Boron Fluoride Piperidine
 Complex
 Boron Fluoride Ethyl
 "Cellosolve" Complex
 Boron Fluoride Hexamethylene-
 tetramine Complex
 Boron Fluoride Monoethylamine
 Complex
 Boron Fluoride Para-cresol
 Complex
 Boron Fluoride Triethanolamine
 Complex
 Boron Fluoride Urea Complex

DOUBLE FLUORIDES

Chromium Potassium Fluoride
 Potassium Ferric Fluoride
 Potassium Nickel Fluoride
 Potassium Titanium Fluoride
 Potassium Zinc Fluoride
 Potassium Zirconium Fluoride
 Sodium Zirconium Fluoride

Sodium Silico Fluoride
 Potassium Aluminum Fluoride

HALOGEN FLUORIDES

Bromine Trifluoride
 Bromine Pentafluoride
 Chlorine Trifluoride
 Iodine Pentafluoride

METAL FLUORIDES

Aluminum Fluoride
 Aluminum Fluoride, Crystal
 Antimony Trifluoride
 Antimony Pentafluoride
 Barium Fluoride

Bismuth Trifluoride
 Cadmium Fluoride
 Calcium Fluoride
 Chromium Fluoride
 Cupric Fluoride
 Lead Tetrafluoride
 Magnesium Fluoride
 (Not Optical Grade)

Mercuric Fluoride
 Manganese Trifluoride
 Molybdenum Hexafluoride
 Nickelous Fluoride
 Selenide Hexafluoride
 Silicon Tetrafluoride
 Silver Difluoride
 Stannous Fluoride
 Strontium Fluoride

Titanium Tetrafluoride
 Tellurium Hexafluoride
 Tungsten Hexafluoride
 Zirconium Tetrafluoride

**NON-METALLIC
 FLUORIDES**

Boron Fluoride, Gas
 Sulfur Hexafluoride

**METAL FLUOBORATE
 SOLUTIONS**

Cadmium Fluoborate
 Chromium Fluoborate
 Cobalt Fluoborate
 Copper Fluoborate
 Ferrous (Iron) Fluoborate
 Indium Fluoborate
 Lead Fluoborate
 Nickel Fluoborate
 Silver Fluoborate
 Stannous (Tin) Fluoborate
 Zinc Fluoborate



Basic Chemicals
 for American Industry

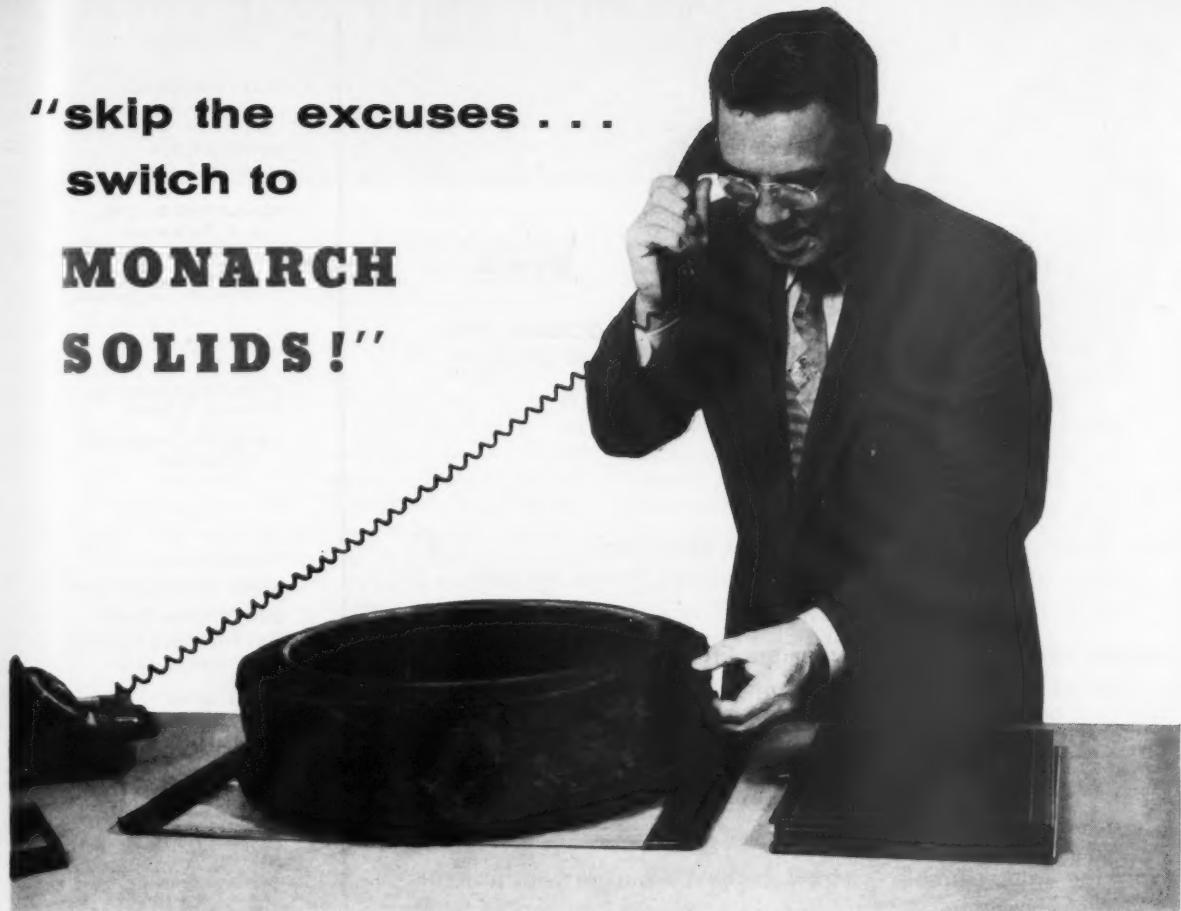
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ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

... for more details, circle No. 1 on Reader Service Postcard

**"skip the excuses . . .
switch to
MONARCH
SOLIDS!"**



. . . and cut tire replacement costs!



When the chips are down, profits are governed by operating costs. And management takes a dim view of purchasing policies when staple items . . . such as lift truck tires . . . require frequent replacement.

Thousands of lift truck users have effected substantial savings by specifying MONARCH industrial solid tires. These high-performance tires last longer and save maintenance dollars because they are made from special Compound T-48C . . . the toughest natural rubber stock developed to date.

Why wait 'til your replacement costs become critical. *Switch to MONARCH solids . . . and begin saving right now!*



THE
MONARCH
RUBBER COMPANY

280 LINCOLN PARK • HARTVILLE, OHIO

7-255 General Motors Bldg., Detroit, Mich.

1035 Bartlett Street, Hayward, Calif.



Ask your nearest Monarch dealer, or write direct, for our new 16-page CATALOG MR-457. It's full of facts, specifications and suggestions to help you save more on solid tires.

. . . for more details, circle No. 2 on Reader Service Postcard



OCTOBER, 1957

Vol. XXII, No. 10

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The Essential Publication for Manufacturing Management in the New Industrial West

Oxygen from the air puts on weight ...thousands of tons a day

Oxygen—part of the air you breathe—is so light you can weigh it only with the most delicate of balances. A whole roomful tips the scale at just a few pounds.

Yet, oxygen is so essential to the nation's economy that LINDE produces it by the thousands of tons. In a small flask or cylinder... in large cylinders... in tank trucks or railroad tank cars... or in tonnage quantities through pipelines—LINDE delivers oxygen, as a gas or as a liquid, in whatever quantity that may be required. A welding repair shop may need only one cylinder—hospitals, large banks of cylinders for hundreds of patients. Portable units, too, are supplied for therapy in your doctor's office, or in your home.

For tonnage users—steelmakers, chemical proc-

essors, defense industries—LINDE builds oxygen-producing plants right where needed. Such on-site facilities, capable of supplying a few or thousands of tons each—with no capital investment by the user and at a price guaranteed by LINDE—are producing thousands of tons of oxygen daily for the requirements of industry.

If you use oxygen... or acetylene, nitrogen, argon, the rare gases... contact LINDE. Our continuing expansion program is part and parcel of LINDE's 50-year-old policy of providing dependable service. LINDE COMPANY, Division of Union Carbide Corporation, 22 Battery St., San Francisco 6, Calif. Offices in other principal cities. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

The terms "Linde" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

The steel industry uses LINDE oxygen in electric furnaces, to improve the quality and speed the production of stainless steels.





ONE OF THE BEST WAYS OF ESTABLISHING A FOREMAN'S AUTHORITY over his men is to give him the power to discipline. And here's one area of labor management where Western plants have recognized the "individualism" of both foremen and workers in creating a more solid labor structure.

The facts show up in the recently published "1957 Survey of Personnel Policies for Foremen," carried out by the National Foreman's Institute. In ferreting out the facts on foreman disciplinary action, the NFI discovered that *no plants* in New England gave their foremen the right to determine the action to be taken in the disciplinary process, and that only 3% of the plants in the big Mid-Atlantic manufacturing area provided this right.

Western plants rise in sharp contrast: 20% give foremen the right to determine the disciplinary action!

Another example of the individualism of Western industry!

LOCAL CHAMBERS OF COMMERCE CAN BE YOUR BEST FRIENDS.

Take the case of the North American Aviation company plant in Fresno which shut down recently.

Here is what the local chamber of commerce did to help employees find work and invite other firms to take over the facilities:

The chamber's industrial consultant made personal calls on aircraft firms in Los Angeles, and the chamber's consultant in New York made similar calls on firms in the East.

The chairman of the industrial committee sent out wires and special letters to prospects.

A brochure, describing North American facilities and manpower available, was distributed to 600 prime prospects.

A telephone campaign by members of the women's section of the chamber was made to all local

industries employing more than 20 persons to determine placement possibilities.

That's a lot of work that could be taken off your shoulders . . . by your friends at your local chamber of commerce.

DESTRUCTIVE FLAMES ARE LEAPING HIGHER AND HIGHER

to ravage more plants in the West!

And, as our fire protection article on page 54 points out, 43% of the plants damaged will never reopen and 28% will have to close in three years.

Seems like a good time to check your safeguards against fire. You might get some ideas from our article on the use of fire-safe fluids on page 46 and from the helpful manuals on fire protection equipment starting on page 65. They're yours for the asking!

WANT TEARSHEETS OF WESTERN INDUSTRY ARTICLES? Here's how to get them. Simply write across the bottom of a WI Reader Service Postcard: "Tearsheets—pages (enumerate pages you want)." We'll send them to you by return mail, up to the time our supply is depleted. Estimated time for you to make the request: 10 to 15 seconds. Cost to you: nothing. And you'll be doing a favor for the next reader of the issue by leaving it intact.

Use of a WI Postcard is the easiest and fastest way, too, to let us know about your change of address, the new title you've just received, or any specific instructions you have about changing the way that WESTERN INDUSTRY is addressed to you each month.

And while you have pen poised over postcard, we'd appreciate your opinion of current WESTERN INDUSTRY articles and features. You might mention as well any special subjects you'd like to have us cover. We'll do our best to satisfy your special reading needs.

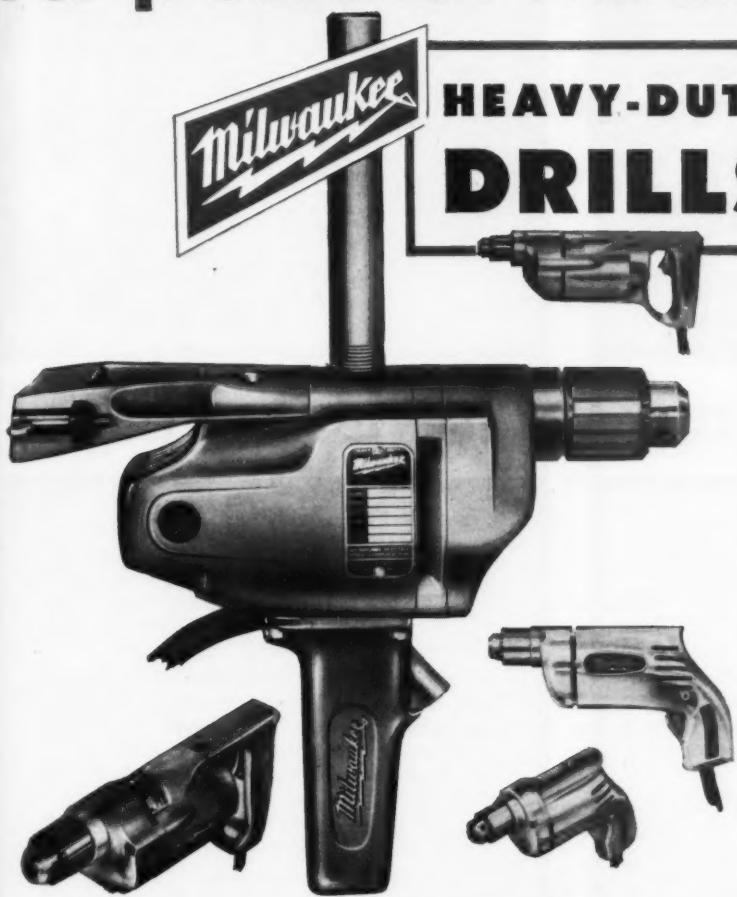
A "TOP STORY" AWARD FOR WESTERN INDUSTRY

California Governor Goodwin J. Knight presents a top story award to WI Managing Editor Peter A. Dickinson for our story on the use of American Indians on Western production lines. The article (page 39, Dec. 1956) detailed our findings ferreted out during a six-month survey to determine how American Indians could fit into your production picture.



Industry's No. 1 choice

For production and maintenance



HEAVY-DUTY DRILLS

A Type and Size for Every Kind of Job

Capacities . . . $1/4"$ to $1"$
 $1/4$ to $1-1/2$ Horse Power

Powered by MILWAUKEE-built efficiency air cooled motors . . . fully protected against overloads. Grease sealed Ball and Roller bearings.

- Hardened helical steel gears. More teeth in mesh for smoother, quieter running . . . greater working power.
- Functional "In-Line" design assures greater drilling accuracy.
- Double and triple reduction gearing for specific high torque requirements.
- Perfect balance . . . easy handling . . . less operator fatigue. Easy grip, no-slip, glare-proof satin-like finish.
- Split-body and handle designs . . . provide easy access to commutator, electrical connections, switch, etc., for inspection, cleaning or maintenance.
- Heavy duty "Jacobs" industrial chucks.
- 115 Volt Standard . . . 230 Volt available.

There is a MILWAUKEE drill for every drilling job. Each is engineered and built for but one purpose . . . heavy duty production use. The powerful motors in these drills are completely manufactured in MILWAUKEE'S own plant . . . designed and built specifically for the tool they power and the job they're to do.

MILWAUKEE has built motors for heavy duty electric tool service for more than 30 years. This long experience and motor building "know-how" is reflected in dependable stall-proof power, best performance and longer life, so characteristic of all MILWAUKEE tools.

Stop in at, or call your nearest MILWAUKEE tool distributor for a convincing demonstration. Let him prove to you why MILWAUKEE has become the *preferred* drill in industry.

Write for Bulletin D-16.

Milwaukee Electric Tool Corporation

Los Angeles, 2569 W. Olympic Blvd.
San Francisco, 1552 Howard St.

MORE POWER
PER DOLLAR



... for more details, circle No. 4 on Reader Service Postcard



for Unloading..

Because the new model HA "PAYLOADER" tractor-shovels are fast, flexible and efficient for unloading boxcars, more and more industrial users of loose, dry materials now specify that shipments be made in bulk at substantial savings in freight rates and handling costs.

This little "PAYLOADER" handles larger loads and delivers more tons per hour than heavier machines with bigger engines, yet has a smaller turning radius for better maneuverability in and around boxcars.

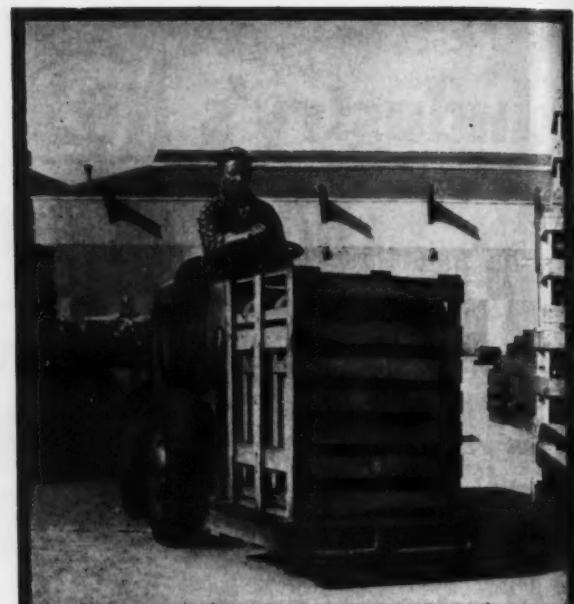
The 40-degree tip-back of the bucket at ground level permits the operator to get and hold big loads close and low. The hydraulic load-shock-absorber, a standard equipment feature, makes it possible to carry and move more material with less spillage, faster, with better stability and greater safety.

For loading or unloading boxcars or stockpile work, this new HA "PAYLOADER" enables the same operator to handle from 50 to 100% more material according to actual user reports.

Depending on the weight of the material to be handled, buckets are available with payload capacities from 12 cu. ft. to 36 cu. ft. The rated carry capacity of the HA is 2,000 lbs. at an average speed of 4 m.p.h.

Your nearby "PAYLOADER" distributor will be glad to demonstrate. The Frank G. Hough Co., 889 Sunnyside Ave., Libertyville, Ill.

76A



for Carrying..

This new model HA "PAYLOADER" is more than just an efficient machine for digging, moving and delivering bulk materials. It is also a multi-purpose materials-handling handyman because of the many useful attachments available for quick interchange with the bucket.

Many industrial firms make use of the lift forks for handling and stacking of palletized loads or individual pieces such as frames, castings, etc., as well as the regular bucket handling of bulk materials. Users often solve "part-time" operational needs with "PAYLOADER" attachments and eliminate additional investment in special equipment.

The load-shock-absorber built into the hydraulic system of the model HA, cushions the pallet load, reduces jouncing, improves the ride and permits faster speeds, with safety.

A closed, pressure-controlled, double-acting hydraulic system and the exclusive single-lever bucket control gives the operator simplified, easy and precise regulation of lifting and tilting operations.

In addition to lift forks there are tine forks, snow plows, sweepers and numerous other attachments available. Your "PAYLOADER" distributor will be glad to discuss your requirements and make recommendations. The Frank G. Hough Co., 889 Sunnyside Ave., Libertyville, Illinois.

76B



PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO., LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



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8



PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO., LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



... for more details, circle No. 6 on Reader Service Postcard

WESTERN INDUSTRY — October 1957



for Sweeping..

It's easy to make a good-housekeeping tool out of a new model HA "PAYLOADER" whenever you need to clean floors, aisles, driveways or outdoor storage areas. In just a few minutes you can fit this sweeper attachment on the bucket. It is complete with a separate hydraulic motor which powers the rotary broom.

You can sweep a four-foot swath right into the bucket and when the bucket is loaded, it can be raised and dumped into a bin or a truck or a pile, as desired.

If the model HA "PAYLOADER" is kept completely busy during the day on regular bulk-handling operations, some users recommend that the sweeper attachment activities be accomplished during "after-hours" or during night-shift operations.

Perhaps you want the HA to help clean up after a snowfall. You can use the standard bucket to push or load, you can have a snow plow attachment, or a larger snow bucket.

This unit, and most of the other models in the complete "PAYLOADER" line, offer a choice of engines for gasoline, diesel or LPG.

Literature on the complete line of "PAYLOADER" machines and their attachments, and the name of your distributor is yours for the asking. The Frank G. Hough Co., 889 Sunnyside Ave., Libertyville, Illinois.

76C



for Pushing..

Another of the many part-time or full-time jobs which can be handled with these new model HA "PAYLOADER" units concerns the pushing or towing of trailer loads.

Pushing is a full-time job for the model shown above. Equipped with a stubby lift-fork attachment, it moves as many as seven loaded kiln cars (28,000 lbs.) at one time in this brick plant. Placing the forks under the end car and lifting transfers additional weight loads to the driving wheels to provide exceptional traction.

This HA "PAYLOADER" replaced two conventional towing tractors — does the job better, at much lower costs. The torque-converter drive provides a steady push that avoids jamming the cars and spoiling brick.

Full-reversing transmission has two speeds in each direction and, combined with the torque-converter drive, gives simple, easy and fast operation with the need for foot clutch operation all but eliminated.

There are few, if any, pieces of materials-handling equipment which offer the user as much in the way of flexibility, versatility and performance as these HA "PAYLOADER" units. A nearby distributor is ready to offer his services. He has complete parts and service facilities to keep your "PAYLOADER" a profitable investment. The Frank G. Hough Co., 889 Sunnyside Ave., Libertyville, Illinois.

76D



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WESTERN INDUSTRY — October 1957



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9



Save time . . . with a free hand

With any strapping tool but this one, it takes two hands and sometimes separate tools to tension and seal strapping. But this man is using Signode's famous one-hand, one-piece Model SFC. It's so light and well-balanced that he can easily hold and operate it with one hand—even on the side of a package. His other hand is free to position the strapping and turn the package or move it on to the next station. Strapping goes faster . . . naturally! Lending a hand to speed your strapping is one more way Signode can make your product cost less to handle, store, ship and receive. See the Signode man near you, or write:



SIGNODE STEEL STRAPPING CO.

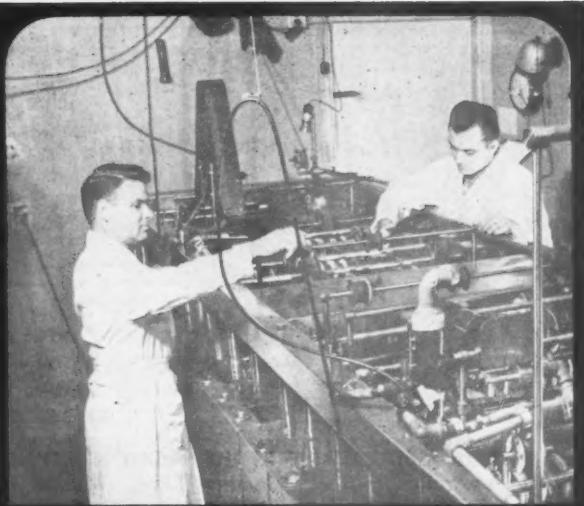
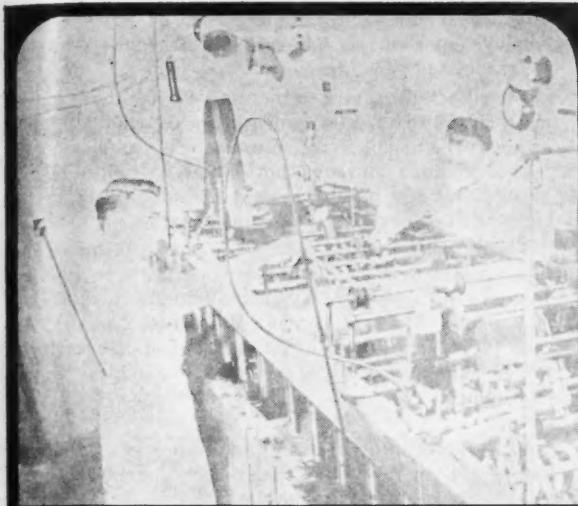
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. . . for more details, circle No. 9 on Reader Service Postcard

WESTERN INDUSTRY — October 1957



3-D lubrication

The story behind Sawyer's Inc. of Portland, Oregon, is a pretty fabulous one. This famous organization is the world's largest manufacturer of 3 dimensional pictures, viewers, and other photographic equipment. As such, they've had to design much of their own ingenious equipment. This naturally led to some specific lubrication problems. From the very beginning, GP lube engineers have helped solve the many complicated operating and maintenance problems arising from lubrication requirements. The next time you have a lubrication problem, make a note to call in your local General Petroleum representative. You'll be very glad you did.



GENERAL PETROLEUM CORPORATION

2-108

... for more details, circle No. 10 on Reader Service Postcard



A TIP TO THE METAL TRADES IN THE PACIFIC NORTHWEST: According to the "Monthly Labor Review" (July 1957) California, and especially the San Francisco Bay Area, sets the pace for collective bargaining in the Metal Trades in the Washington-Oregon area.

The Labor Review reports: "Of first importance in collective bargaining in the machine shops is what happens in the same kinds of firms in the San Francisco Bay Area.

"Wage and fringe patterns in the Northwest appear to follow conditions negotiated by the California Metal Trades Association and the respective unions. Hourly wage rates for journeymen are usually a few cents higher in California than in the Northwest.

"Negotiations are completed in the summer in California and in the following spring are conducted throughout the Washington-Oregon area. Thus, whereas the wage gains in California never set precisely the amounts which will be added to wage rates in the north, such increases offer a guide for negotiations.

"In the matter of fringe benefits, the Northwest has clearly followed the California pattern. Both the provisions for pro rata vacations and health and welfare benefits were originally negotiated in the San Francisco Bay Area. Health and welfare benefits went into effect in the Northwest in 1952, following Wage Stabilization Board approval of contract provisions negotiated in 1951. California agreements contained such provisions in 1949."

SEVENTY-NINE EMPLOYEES OF BECKMAN INSTRUMENTS, INC., whose plans for doing jobs better will save the company an estimated \$70,000 a year, were honored at a company banquet at the Disneyland Hotel in Anaheim.

The affair was the second Beckman Work Simplification and Leadership Training Program Graduation Banquet and it marked the end of a six-month series of courses for the 79 participants. The class members came from Beckman's Scientific and Process Instruments divisions at Fullerton and the System Division at Anaheim.

A major objective of the continuing program is to teach the fundamentals of Work Simplification—how to "work smarter—not harder," according to **Jack Hart**, Beckman Employee Relations Dept. training director, who coordinated the effort. Emphasis also is given to leadership fundamentals for supervisory personnel.

MOUNTAIN STATES MANUFACTURING EMPLOYMENT advanced seasonally by 8,400 to a mid-July total of 238,100, according to a recently published bulletin by the U. S. Department of Labor.

The report goes on to point out that food processing,

after a late start, added employees in all states. Lumber employment also was up seasonally in Idaho, Montana, Colorado, and New Mexico.

Manufacturing, as a whole, rose 17,400 above July of last year, but part of the gain must be discounted because of last year's metals strike. Manufacturing employment in Idaho, Montana, Nevada, and Wyoming dropped slightly below a year ago, but these losses were more than offset by gains in the other four Mountain States.

Changes in weekly hours of manufacturing production workers were comparatively small between June and July. Hours were higher than the national workweek of 39.9: Utah (41.6), Colorado (41.4), Idaho (40.9), Arizona (40.7), and New Mexico (40.3). The manufacturing workweek averaged slightly below the national figure with 39.8 hours in Wyoming, 39.4 in Montana, and 37.7 in Nevada.

Weekly earnings in manufacturing averaged slightly lower in July in most states than in June; partly because of small decreases in hours and partly because of the hiring of lower paid employees for food processing. But all states were well above the national average of \$82.99. Weekly earnings in July were \$86.71 in Idaho, \$87.45 in New Mexico, \$88.29 in Montana, \$88.60 in Colorado, \$89.44 in Utah, \$90.76 in Arizona, \$91.94 in Wyoming, \$95.38 in Nevada.

NEW INSIGHT INTO THE METHODS AND REQUIREMENTS OF WESTERN INDUSTRY has been gained by 18 teachers who recently completed a five-week workshop in the "Understanding of Business and Industry" at the College of Pacific, Stockton, Calif.

Conducted by Donald S. Bibbero, associate professor of Business Administration, the workshop objectives are to acquaint teachers with the policies used by industry so they may use this information in the classroom as a basis for curriculum and study; to broaden the experience of the participants; to portray the role of industrial, economic and social structures in California; and to reveal the human side of industry.

The opening and closing weeks of the workshop were held in the College of Pacific classrooms on the Stockton campus. During the three intervening weeks, industrial



TEACHERS' INSIGHT INTO INDUSTRY—This group of teachers is learning the facts of industry firsthand at the Stockton plant of Continental Can Co. Left to right: **John Anderson**, Newman High School; **Richard Lauver**, Stockton Jr. High School; **Jess Leishman**, Continental Can Co. (Stockton); **Don Evans**, Franklin High School; **Donald Bibbero**, associate professor at College of Pacific (leader of the workshop); **Bill Banks**, San Mateo High School.

firms were laboratories for actual participation and observation by workshop members.

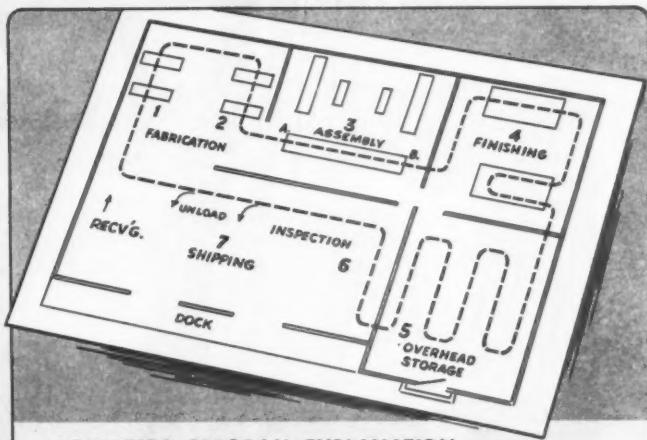
Among firms participating were: Calaveras Cement Co., California Walnut Growers Assn., California Packing Corp., Continental Can Co., Crispie Potato Chip Co., Electric Lighting, Inc., Fibreboard Products, Pacific Clay Products, Stockton Box Co.

CHAINVEYOR

LOWERS HANDLING COSTS

A MONTH AGO YOU COULDN'T HAVE ELBOWED YOUR WAY THROUGH THIS AISLE!

TWICE THE ROOM IN "SHIPPING" TOO, SINCE CHAINVEYOR AUTOMATIZED THE PLANT - AND LOOK AT THAT INSPECTION OPERATION MOVE ALONG!



CONVEYOR DIAGRAM EXPLANATION

FABRICATION

1. Machine operator loads conveyor at completion of first process.
2. Chainveyor carries parts overhead to next step, unloads automatically, operator hangs piece on conveyor at convenient dip section.

ASSEMBLY

- 3a. Traveling quickly up and over the aisle Chainveyor discharges parts at start of assembly table.
- 3b. At the completion of assembly, the checker loads without moving from the work station.

FINISHING

4. No manual handling in this whole department as parts travel through painting and drying, rotating when necessary, cooling on the conveyor while traveling.

OVERHEAD STORAGE

5. Any amount of "live" storage can be provided, freeing important floor space for other operations.

INSPECTION

6. Parts are continuously checked without laborious lifting or lost motion while on Chainveyor.

SHIPPING

7. Completed assemblies are transported to the final destination, reducing handling cost and increasing efficiency.



Send for your PLANNING FOLDER

by circling your reader service card.

You receive:

- A handy file folder for keeping materials handling information.
- Special illustrated catalog with proven applications, details and representative users.
- Explanatory diagram illustrating a typical Chainveyor layout showing component parts.
- Plant and conveyor planning grid sheets for preliminary layouts.



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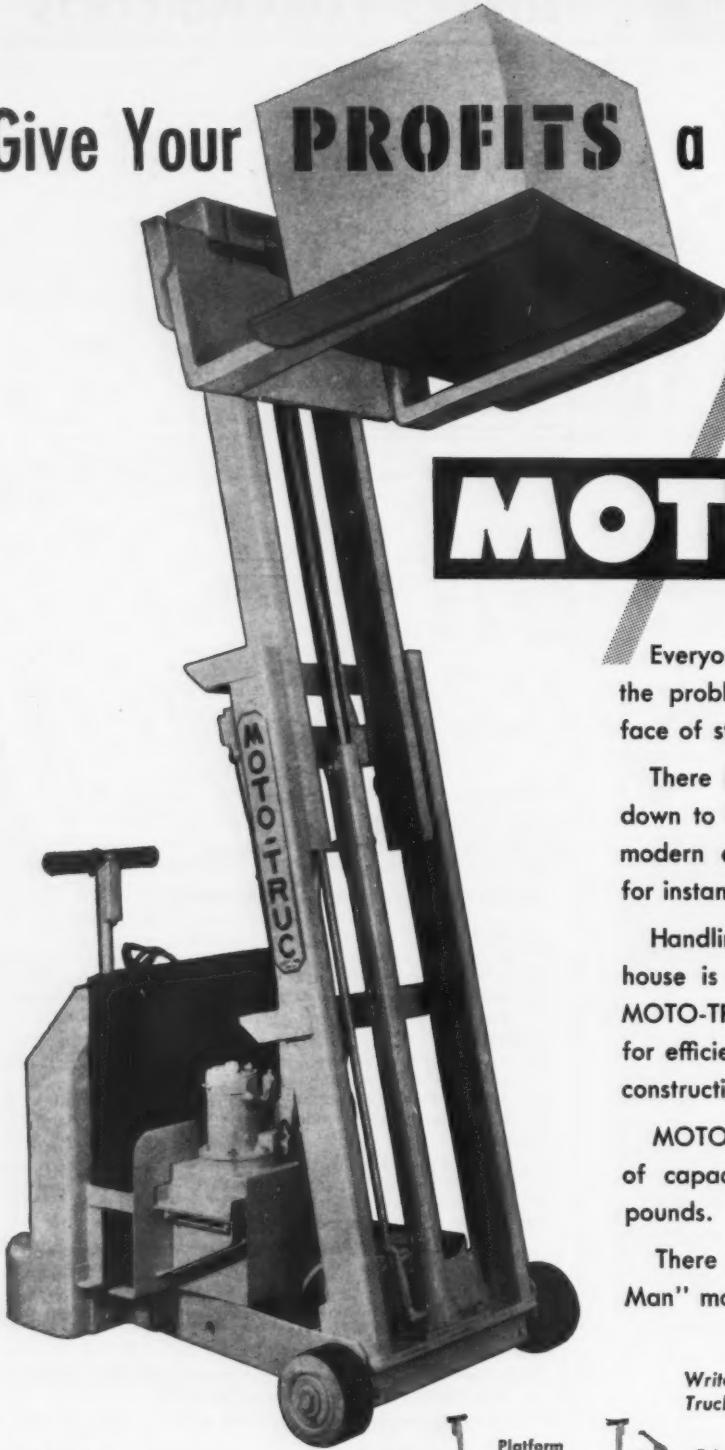
Engineering and Manufacturing Headquarters — 5618 E. Washington Blvd., Los Angeles, Calif.

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Pallet . . . Platform . . . Hi-Lift Truck

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WESTERN INDUSTRY — October 1957

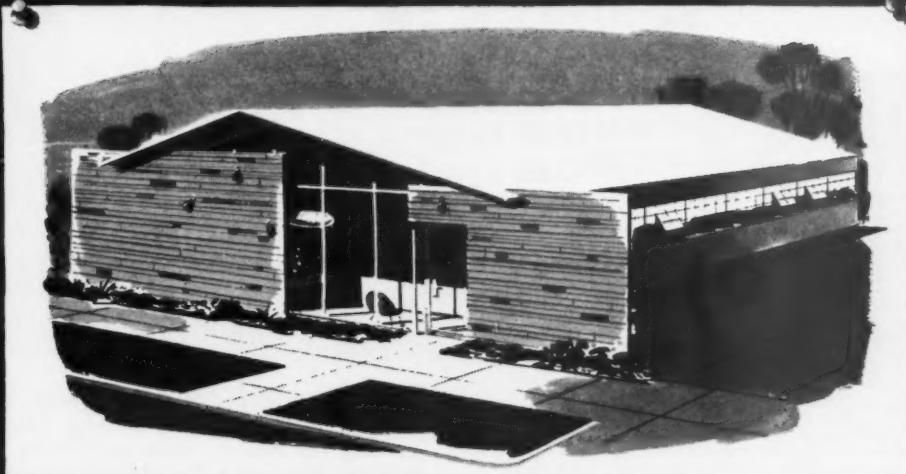
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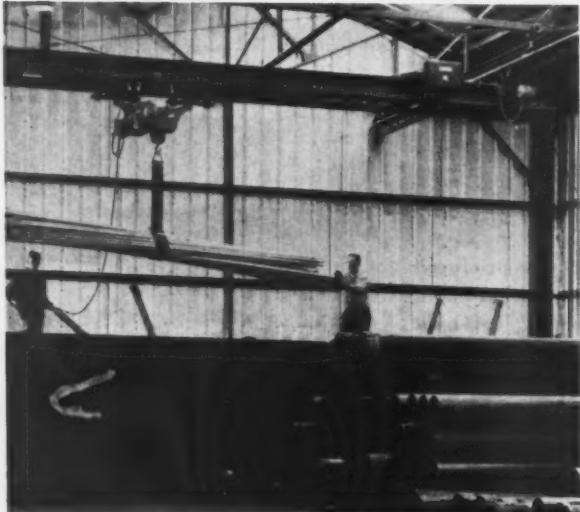
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Tramrail Crane CUTS PIPE HANDLING COST 40%



Unloading a railroad car inside the warehouse.

Loading a bundle of pipe directly from railroad car onto a truck for local delivery.



CRANE-O'FALLON CO., Denver, branch of the Crane Co., a large plumbing, heating equipment, valve and fitting manufacturer, installed a Cleveland Tramrail crane for handling pipe out of railroad cars into trucks for immediate delivery or into storage. The crane so speeded the work that now a 100,000 lb. car can be handled for what it formerly cost to unload a 60,000 lb. car.

The crane is of two ton capacity and has a motor-driven bridge and hoist. The carrier is hand-propelled because it rolls free and easy and normally is only traveled a few feet.

The Crane-O'Fallon installation is typical of the great savings that are being made by Cleveland Tramrail cranes and overhead materials handling systems.

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Overhead Materials Handling Equipment

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FOR THE FIRST TIME the American Standards Association will hold its annual conference in the West. The three-day meeting is scheduled from Nov. 13-15 at the St. Francis Hotel, San Francisco. This will be the thirty-ninth meeting of the ASA and the eighth National Conference on Standards.

Eleven sessions are planned for the conference. More than 50 speakers will discuss such subjects as government and industry use of standards, standards for control of exposure from ionizing radiation, cost improvement through standardization, standardization within the company, profiting by standards in the railroad industry, industrial standardization for defense, construction specifications, standards for motion pictures and stereophonic tapes, electronics, standardization for technical communication, and the work of the American Standards Association.

The keynote address on the conference theme: "Standards—Key to Progress and Profits," will be delivered by **H. Thomas Hallowell, Jr.**, president, Standard Pressed Steel Co. and president of the ASA. Further information on the conference may be obtained from Mr. Hallowell at Jenkintown, Pa.

A five-day seminar on industrial standardization will be held in conjunction with the conference. Dates are Nov. 18 through 22 at the St. Francis Hotel, San Francisco.

The seminar will be conducted by Dr. John Gaillard, management counsel, who is a former member of the ASA staff and a lecturer at Columbia University.

The primary objective of the Gaillard seminar is to assist top management in setting up a standards organization in a company, developing a procedure and program for handling the work, and training staff men in the functions of the standards engineer—including the art of writing specifications.

Details on the seminar may be obtained from Dr. John Gaillard, Box 273, Route 1, Briarcliff Manor, N. Y.

the second day, the program will be devoted to the steel industry's part in the growth of Western industry.

Further information can be obtained from the American Steel Warehouse Association, Inc., 540 Terminal Tower, Cleveland 13, Ohio.

THE LATEST LINES OF ELECTRICAL EQUIPMENT will be displayed at the 14th Annual Display of Aircraft Electrical Equipment on Oct. 24-25 in the Pan Pacific Auditorium, Los Angeles.

Over 200 booths will be set up, with 21 firms new to the display. In addition there are eight new representatives representing 75 companies.

As a supplement to the Los Angeles display, the society will conduct a show for the first time in San Diego, Oct. 30, at the U. S. Grant Hotel. The San Diego show was originated to point up the growing importance of the border city to the aircraft industry.



DENVER CHAPTER, AMERICAN MATERIAL HANDLING SOCIETY—Officers and committee chairmen are pictured above. Front row (left to right): **Charles Schoenecke**, membership chairman; **John Fox**, treasurer; **Harry H. Newmann**, president; and **Vern Bybee**, national director. Back row (left to right): **Shelton H. Streator**, secretary; **Ray Nelson**, vice president; **Dana Malchow**, publicity chairman; and **William Francis**, program chairman.

**WESTERN
MEETINGS
YOU
SHOULD
PLAN
TO ATTEND**

Oct. 15-17—38TH PACIFIC COAST MANAGEMENT CONFERENCE, regional conference, Claremont Hotel, Berkeley, Calif. Contact Everett Van Every, secretary-manager, Western Management Assoc., 2180 Milvia St., Berkeley, Calif.

Nov. 13-15—EIGHTH NATIONAL CONFERENCE ON STANDARDS. First meeting on West Coast. St. Francis Hotel, San Francisco. For further information write to H. Thomas Hallowell, Jr., Standard Pressed Steel Co., Jenkintown, Pa.

1958

Feb. 6-7—GOVERNOR'S INDUSTRIAL SAFETY CONFERENCE, eighth annual California statewide meeting, Fairmont Hotel, San Francisco. Further information may be obtained from H. A. Hartman, staff consultant, manufacturing section, 965 Mission Street, San Francisco, Calif.

March 17-21—NATIONAL ASSOCIATION OF CORROSION ENGINEERS, 14th annual conference, San Francisco. Contact A. B. Campbell, executive secretary, 1061 M & M Building, Houston 2, Texas.

April 12-17—AMERICAN CHEMICAL SOCIETY, California section will sponsor third Pacific Chemical Exposition in San Francisco. For further information contact Connolly & Leopold, exposition management, Hotel Sheraton-McAlpin, New York 1, N. Y.

May 7-11—WESTERN AIR CONDITIONING INDUSTRIES ASSOCIATION CONFERENCE AND EXHIBIT, second meeting. Scheduled for the Shrine Exposition Hall, Los Angeles. Contact Fred J. Tabery, 3443 So. Hill St., Los Angeles 7, Calif.

FIVE WESTERN CHAPTERS of the American Steel Warehouse Association will meet at Del Monte Lodge, Pebble Beach, Calif., Nov. 17, 18, and 19 for the second annual meeting especially devoted to the distribution of industrial steel products in the West.

Business sessions will begin with breakfast on Monday and Tuesday (Nov. 18 and 19). The program for the first day will include a review of ASWA activities, new advertising and sales promotion program, along with first reports of the DCA study of product-line profitability. On



THE WORLD OF FELT AT YOUR DOORSTEP!

Invite in A. B. BOYD COMPANY...and Select From American Felt's Complete Line

Put this experienced task force to work on your next felt problem!

You save time and trouble—because there's an A. B. Boyd office nearby . . . staffed with men who *know* felt and *know* how to apply it effectively to your business, reducing costs . . . improving product performance. And these men are backed by the largest, best equipped research facilities in the industry . . . American Felt Company facilities you can use to help solve all difficult requirements.

If you are not now using Felt, a Boyd representative will gladly make a "Felt Survey" of your products and processes, pointing out where quality American Felts can aid you . . . use these versatile engineering materials to filter, isolate vibration, polish, insulate, sound-proof, wick, wipe . . . as seals, gaskets, packings, cushioning, lining, friction controls, apparel and decoration. Felt is produced in rolls, sheets or as precision cut-parts for all applications . . . Remember: American Felts are produced to the highest standards in the felting industry!

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Data sheets and technical bulletins covering specific Felts are available on request from any A. B. Boyd Office or by writing — on company letterhead, *please* — to American Felt Company, General Offices and Research and Engineering Laboratories, 315 Glenville Road, Glenville, Conn.



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Where dry bulk materials must be conveyed and processed—anywhere in the world—STEPHENS-ADAMSON can supply the equipment to move them better, faster, and at lowest cost per ton. In every industry where bulk materials handling is part of the processing job, S-A engineers have the experience that accrues from planning thousands of installations.

If you need a single item, or a completely engineered and installed system, STEPHENS-ADAMSON has the exact conveyor machine, or will design the system that will do the job best. Our engineers will work independently or with plant engineers, consulting firms, and construction contractors.

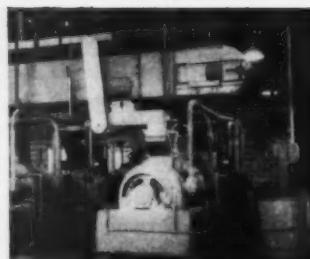
Call on S-A. When you do, you call on 56 years of experience.

S-A manufactures a wide range of material handling products in three complete plants in U. S. and Canada.

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Ship Loading Boom Conveyors
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Stephens-Adamson's exclusive REDLER conveyor carries wood chips to refiners. REDLER conveyors and elevators are built in many arrangements, will handle any dry bulk, fine, flaky or granular material. Completely enclosed design protects the product.

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WESTERN INDUSTRY — October 1957

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CASE #1	WASTED LABOR <i>Too much work—not enough done</i>
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CASE #3	<i>Elementary, my dear Watson. The inevitable result of cases No. 1 and No. 2... BIG MONEY LOST!</i>

A staggering 90% of building maintenance costs is labor expense. Cut costs—take advantage of EASTERDAY'S "College of Janitorial Knowledge." FREE on the job training. Your people will learn all the best ways to use the best products most economically and efficiently. Grime does not pay. Find out about it now. It's FREE. Just fill out the coupon.

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Please send me details on how our janitors can participate in an Easterday Janitorial Class. We employ _____ janitors.

Name _____

Firm _____

Position _____

Address _____

City _____ State _____



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Twelve Pacific Coast Warehouses Providing Everything for Sanitation and Maintenance

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TURNING POWER

For threading, cutting, hoisting, cranking, pulling, winching and dozens more!

The powerful TOLEDO No. 68 is only 6" wide and 32" long. Weighs only 33 lbs. Air motor available, too!

This handy, lightweight adaptor snaps on in a jiffy. Square socket adaptor adds extra versatility.

Just pull the pawl and snap on the die stock—and you're ready to thread.

TOLEDO No. 68 Power Drive will be the easiest—and the handiest—you ever owned. It's a rugged, lightweight workhorse, a husky worm and ring gear assembly powered by a ½ HP reversible motor, housed in a gleaming lightweight frame. With adaptors, the No. 68 makes a handy threader for pipe or conduit—handles die stocks up to 4". Die heads change in seconds. The No. 68 is only 6" wide—gets in work in cramped quarters. WHEREVER you need portable turning power the TOLEDO No. 68 is the answer.

This square socket adaptor puts real turning power on the spot . . . opening and closing valves . . . operating hoists and winches . . . operating tapping machines . . . turning earth augers . . . pulling wire through long conduits . . . bending pipe . . . and you'll find many, many more when you put a TOLEDO No. 68 to work for you! See your nearby TOLEDO distributor today!



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22

BOOKS

— to aid your know-how

Human Understanding in Industry

A handbook for supervisors, this 112-page publication is designed to enable the supervisor to understand himself and his employees better. Organized for use in supervisor training courses, the book presents down-to-earth, practical views of how the human personality functions. Written by the renowned Dr. William C. Menninger and assisted by Dr. Harry Levinson, both of the Menninger Foundation, it uses factual, understandable material to bring out its important points. A Leader's Guide, for use in conducting group discussions, is also available. Single copies of the book are \$2.25; Group Training orders, 25 or more copies, \$1.75; Leader's Guide \$.50. *Industrial Division, Science Research Associates, 57 W. Grand Ave., Chicago 10, Ill.*

The Art of Leadership

What is leadership, its traits, techniques and other aspects are discussed in a 22-page booklet written by Arthur H. Young, industrial relations lecturer. It contains observations about leadership in the army, anecdotes from industry. \$1.00. *Bookstore, California Institute of Technology, Pasadena.*

Outline of Employee Benefit Programs

A guide to discussions in the field of employee benefits, this 32-page book classifies the benefits within distinct categories on the basis of the industrial relations functions for which they are designed. It covers wage continuation plans, benefit arrangements in case of death, programs to meet costs resulting from injuries or illness, programs that allow paid leave, and various other indirect worker compensation plans. The outline groups programs by their function, includes a section on evaluation and integration of employee benefits' programs, \$1.00. *Industrial Relations Section, California Institute of Technology, Pasadena, Calif.*

566 pages on plant protection

Of interest to the industrial guard, operations manager, personnel director or student of plant protection is this comprehensive book on problems and methods of fulfilling necessary safeguards for industry. Valuable to the firm initiating a plant protection department or the firm so equipped, it covers selection and training of protection officers, employee identification, reports, master-key system, fire and accident control, government security regulations and hundreds of other subjects. *Industrial Plant Protection, John Richelieu Davis, \$12.00. Published by Charles C. Thomas, 301-327 East Lawrence Ave., Springfield, Ill.*

Small Business Administration Circular

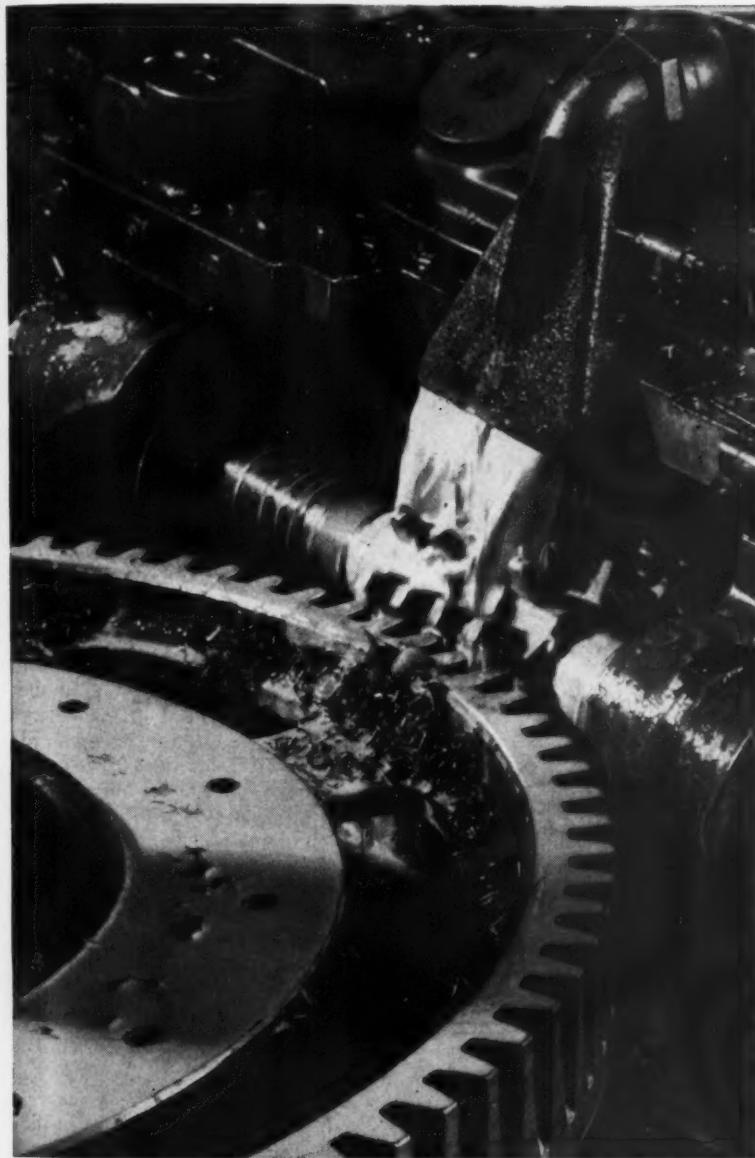
Patents covering inventions available to small business firms under sale or licensing are listed in the monthly Small Business Administration Products Circular of information on new and improved products and processes of interest to small firms for manufacture, expansion or diversification of their lines. Copies are available at all the agency's field offices or on written request to *Small Business Adm., Washington 25.*

STANDARD ENGINEER'S FIELD REPORT

PRODUCT CHEVRON* CUTTING FLUIDS

SKAGIT STEEL & IRON WORKS
FIRM Sedro Woolley, Wash.

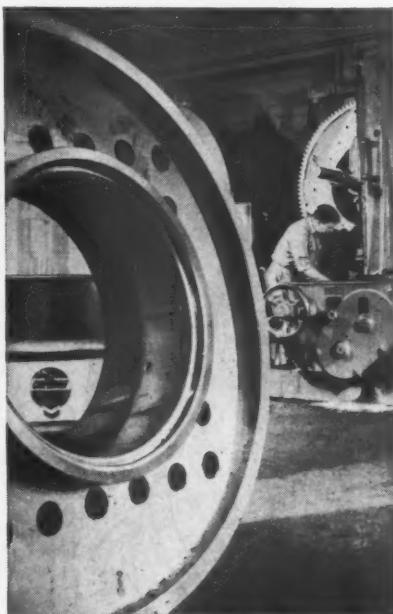
Chevron* Soluble Oil saves firm \$4,000 per year



Economical Chevron* Soluble Oil replaced three specialized cutting fluids at Skagit Steel and Iron Works, saving \$4,000 annually in fluid costs and storage space. Cutting speeds, tool life, work quality were maintained with no corrosion of work or machines. Skagit produces a wide variety of marine deck machinery, shoreside hoists, mobile and stationary logging equipment—uses Chevron Soluble Oil for all metal cutting operations including lathe turning, milling, drilling, broaching, grinding, and gear cutting. Gould and Eberhardt gear hobber (above) produces gear for a Skagit Mobile Logger.



STANDARD OIL COMPANY OF CALIFORNIA
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Turnable Gears for mobile logger are also machined using Chevron Soluble Oil. Product is diluted in ratios between 18 and 80 parts water to one part oil, depending upon steel number and machining operation.

Why Chevron* Cutting Fluids solve metal-cutting problems



- Have high cooling and lubricating qualities—increase tool life.
- Assure precision finishes.
- Additives protect against extreme pressure, corrosion, rust.
- Very stable—will not separate or turn rancid.
- Specialized products for every metal-cutting operation.

For Full Information contact your Standard Engineer or Representative, or write 225 Bush St., San Francisco 20, California.

*The Chevron Brand covers the line of industrial products formerly sold under the Calol name. This is a name change only. The high quality and specifications remain the same.

BOOKS

Man and Automation

Written by L. Landon Goodman, British industrial specialist, this 280-page paperbound book deals with such phases as the four components of automation, its object, changes it will bring, management's responsibility, and other ideas on the subject. \$85. *Penguin Books, Inc., 330 Clipper Mill Road, Baltimore 11, Md.*

Engineering career satisfactions in industry

How professional engineers in industry feel about non-salary career satisfactions at three stages of professional experience is the subject of a survey report based on data gathered from lengthy "depth" interviews with several hundred men in that field. Questions centered around things such as the engineer outside his work, career outlooks, questions of professional status and the difference in values of more successful engineers. \$3.00. *Professional Engineers' Conference Board for Industry, 2029 K Street N. W., Washington 6, D. C.*

Army report on machinery replacement

A mathematical discussion of the theory of replacement of machinery with random failure rate is contained in a report of Army research released through the Office of Technical Services, U. S. Department of Commerce. The study analyzes the effect of current replacements on the expected time-to-failure of individual components or groups of components. Report PB 1211424, \$0.75. *Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.*

Government research reports, newsletter

Abstracts of about 300 technical research reports of interest to scientific organizations and industrial firms are printed monthly in *U. S. Government Research Reports*, publication of the Office of Technical Services. *Technical Reports Newsletter*, another OTS publication, also announces availability of the reports which are collected from the three military branches, the Atomic Energy Commission and other agencies. USGR subscription—\$6, yearly; Newsletter, \$1. *Superintendent of Documents, U. S. Government Printing Office, Washington 25.*



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What do all
these Western
products have
in common?

turn page 
for answer

All are products fabricated from United States Steel Sheets. And here's why:

"The formability of *USS Cold Rolled Sheets* means accelerated production and lower consumer costs without a lessening of product quality," says Mr. Thomas J. Mellon, General Sales Manager, Wesix Electric Heater Co., San Francisco, California.



"The excellent formability and dependability of *USS Cold Rolled Sheets* allow us to create new styling that's appealing to the public," says Mr. Hebert S. Leo, Executive Vice President and General Manager, Utility Appliance Corp., Los Angeles, Calif.



"The paint-ability and formability of *USS Cold Rolled Sheets* help us design furnaces that match modern decorating trends," says Mr. Kenneth E. Fitzgerald, Sales Manager, Roscoe Manufacturing Co., Seattle, Wash.



"The quality of *USS Cold Rolled Sheets* plays an important role in the success story of Day & Night Water Heaters," says Mr. A. J. Horn, General Sales Manager, Day & Night Manufacturing Co., Monrovia, Calif.



"The consistent quality of *USS Cold Rolled Sheets* helps us produce a better finished product... a more saleable product," says Mr. R. E. Gates, Manager of Conduit Sales, Rome Cable Corp., Torrance, California.



"The consistently smooth surface of *USS Cold Rolled Sheets* used in our fixtures is reflected in our steadily climbing sales curve," says Mr. Charles D. Buchanan, General Sales Manager, Fluorescent Fixtures of California, South San Francisco, manufacturers of All-Brite fixtures.



"We figure we have a big sales plus in using quality *USS Sheets* for O'Keefe & Merrit ovens," says Mr. Frank Breckenridge, General Manager, O'Keefe & Merrit Co., Los Angeles, California.



"*USS Cold Rolled Sheets* can take a lot of credit for keeping production costs down to where economy is a big sales point for our heaters," says Mr. John Margetts, General Manager, The Stokermatic Company, Salt Lake City, Utah.



Better finished products start with



Sheets

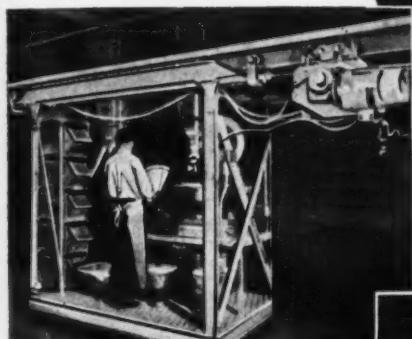
United States Steel in the West: Columbia-Geneva Steel Division

UNITED STATES STEEL

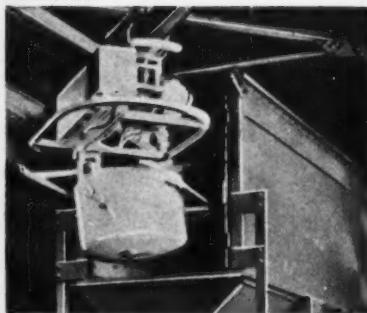
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WESTERN INDUSTRY — October 1957

Automation in Action!

Louden Selectomatic Dispatch



2 A Mixing Operator rides a Louden Weighing Lorry selecting the grades of grits according to type of grinding wheel to be manufactured. Similarly, the various grades of bonding agents are selected.



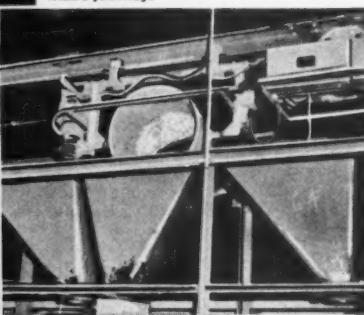
4 After automatically dumping, the carrier proceeds to the cleaning station; opens and shuts doors, starts and stops an air cleaning jet which thoroughly cleans the bucket.



Material Handling", a 52-page book full of how-to-do-it ideas. If you are interested in automation, ask for the new book on Louden Automatic Dispatch, "Automatic Materials Handling". With either you will receive the latest information on Louden Shok-Pruf Electrification, new safety in power for cranes and monorail systems.



1 A Mixing Operator loads a carrier after electrically calling it on the control panel. After loading, he will select on the panel the carrier's destination and start its automatic journey.



3 Completely unattended, the Louden Selectomatic Carrier stops at a designated press hopper and dumps the mix.

Automation always brings its greatest gains by the waste it eliminates in handling. It saves time and it saves labor; uses men for their brains rather than their brawn, makes materials handling an aid to their skills rather than an unpleasant handicap. This is the way Louden automatic materials handling serves the world's most modern bonded abrasives plant of the Carborundum Company that was completed recently in Logan, Ohio.

This new Carborundum plant was designed to gain the benefits of automation with a Louden Selectomatic Dispatch System. Materials storage is on the third floor, materials mixing is on the second

floor, molding of the mixed materials is on the first floor, with interfloor transfer of materials by gravity. The Louden equipment operates in the mixing and molding departments.

Mixing operators on Louden Weighing Lorries move from spout to spout drawing grits and bonding materials from the storage above and mix these according to formulae for the grinding wheels to be manufactured. Each mix is placed in a hopper at a loading station. Then, when a press on the floor below is ready for a mix, the touch of a Louden Selectomatic control button automatically brings an empty carrier into position under the proper loading station, directs the carrier to the hopper of the proper press, dumps the mix, sends the carrier to an automatic cleaning station, and then returns it to the "empty" line to await another call. Six such Louden Selectomatic Carriers operate over more than 1,700 feet of Louden Monorail to serve the many presses in this molding department.

When you are planning new production facilities or the extension or modernization of your present facilities, discuss your plans or problems with Louden engineers. No company in materials handling engineering has the years of experience, the array of equipment or the record of accomplishment Louden can demonstrate. Write or wire today.

Louden
MONORAIL & CRANES

SINCE 1867 . . . THE FIRST NAME IN MATERIALS HANDLING

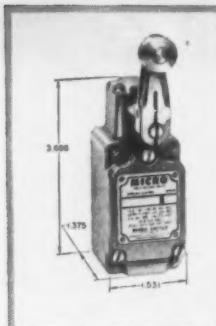
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MICRO SWITCH

... FIRST IN
PRECISION SWITCHING

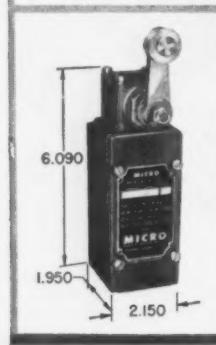
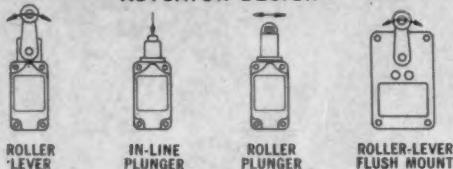


These low-cost MICRO SWITCH controls



TYPE LS SERIES—Rugged, small, reliable. Moving parts and switching chamber completely sealed. Two-circuit, double break contact arrangement. Operating force—3 lbs. max. No. 8 terminal screws accommodate No. 14 stranded wire.

ACTUATOR DESIGN



TYPE ML SERIES—Heavy duty limit switches. Combine rugged, sealed construction, precise operation and extremely versatile adjustability. Available in high-capacity, explosion-proof and two-circuit versions.

ACTUATOR DESIGN



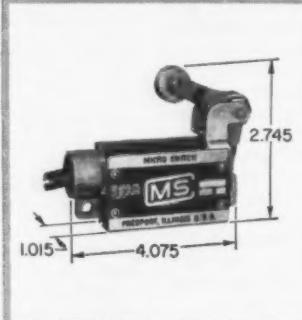
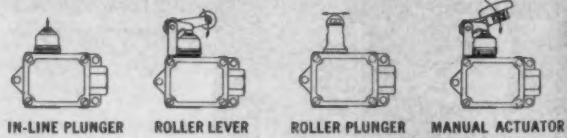
increase
production speed
and efficiency—
reduce breakage,
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*Thousands of plant
operating men are
using these versatile
switches to upgrade
present plant equipment*



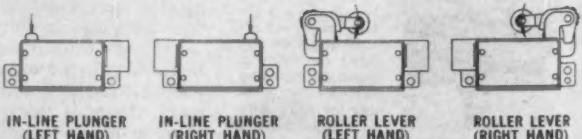
TYPE F SERIES—Rugged, compact precision switches with high current capacity. Seals make enclosure dust and oil-tight. Accurate repeatability. Available in either left hand or right hand designs. The SPDT series will make and break steady state currents of 20 amps. 125, 250 or 460 vac and handle in-rush currents as high as 75 amps.

ACTUATOR DESIGNS



TYPE LN SERIES—High strength cast enclosure and design of plunger mechanism permit rapid, hammer-blow cam actuation without harm to enclosed basic switch. Extremely compact design often permits use in applications where no other switch will fit.

ACTUATOR DESIGNS



MICRO SWITCH precision switches for plant equipment are available in hundreds of variations of actuator designs, circuitry, electrical capacity and terminal designs. See your nearby Authorized Distributor. Look under "Switches, Electric" in the Yellow Pages.

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TURNS IN ITS TRACKS . . . where many smaller loaders have to jockey.

DIGS INTO HARD-PACKED MATERIAL . . . exerts 20,000-lb break-out force, with 72 net engine hp and modern bucket design.

These are just four examples of how an Allis-Chalmers HD-6G tractor shovel offers a combination of strength, traction, flotation and mobility that enables it to replace a fleet of part-time specialized machines. You can count on it to boost production indoors or out, the year-round. Ask your Allis-Chalmers dealer about the HD-6G . . . also the three larger tractor shovels with capacities up to 4 cu yd. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

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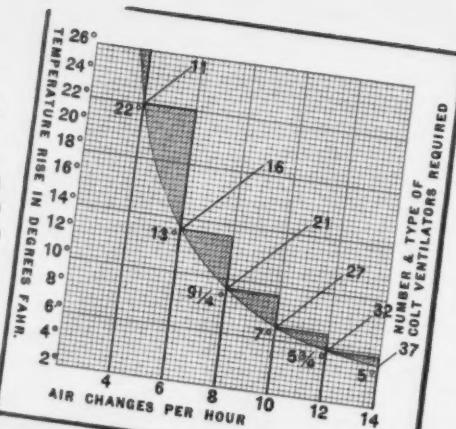
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Pictured above are some of the 27 CO/2046 Colt Clear-Opening Adjustable Louver Ventilators installed in the sawtooth roof at Nardon Manufacturing Company. Installation was carried out without affecting working operations by simply removing panes of glass and inserting ventilators in their place.

The customized chart illustrated at top was used to determine the most efficient and economical number of ventilators to be used. Since each

building presents a different ventilation problem, Colt has devised its unique customized chart, based on theoretical calculations plus Colt's carefully kept records of more than 32,500 installations, to produce the most economical ventilation system and to show exactly what it will do in a building.

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WESTERN INDUSTRY — October 1957

... for more details, adv. opp. pg., circle No. 28 on Reader Service Postcard ➤



EUTECTIC

Welding News

PUBLISHED BY EUTECTIC WELDING ALLOYS CORPORATION, 40-40 172 STREET, FLUSHING 58, NEW YORK, N. Y.

OVERLAY TECHNIQUE SAVES \$2000



Photo shows hammer heads in various stages. Far left shows new hammer. Others show cracking and peeling to different degrees. These were overlayed with ordinary materials.

Overlaying worn crusher hammers with conventional welding materials proved costly to a Minnesota brick plant. Overlays failed in less than a week, repair costs mounted.

The Eutectic District Engineer advised that high heat needed to apply the conventional materials actually weakened the overlay. The answer was to use as low amperage as possible.

Tests were run on hammers rebuilt in this way: First, hammer faces were padded with EutecTrode 680 AC-DC. This very high strength alloy, applied at very low amperage, acts as a cushion for the overlay. Next, EutecTrode 10 for super high hardness (RC 64-68) was applied over the padding layer, giving maximum abrasion resistance. For added protection against severe pounding, EutecTrode 12 was applied to corners.

At the start of the test, all hammers weighed 21½ pounds. After two weeks hammers with conventional overlays were down to 16½ pounds. Six weeks later hammers with Eutectic repaired overlays were still 18½ pounds. Repairs, reports the company, which once cost \$690 every six weeks, were now reduced to \$369... savings close to \$2,000 a year... almost 50%. Now, hammers need attention only every six weeks rather than every week... and downtime has been cut by 84%. (B-13)

EXTRUDED COATING SOLVES ALUMINUM WELD PROBLEM



Welds on aluminum tanks were cracking right down the middle. Difficulty was caused by the uneven flow of flux, common when flux is put on rod by old fashioned dipping. Eutectic's Low Amp EutecTrode 2101, with extruded "frigid arc" flux coating was used. Because of smooth, even, extruded application of flux to rod, it is spatter-proof and easy to control. EutecTrode 2101 is strong, too—with an ultimate tensile strength of 34,000 psi to make joints up to three times stronger than those obtained with conventional welding materials. Tank fabricator reports cracking problems solved... production increased by 40%. (B-14)

CONCRETE FORM'S INTERIOR BRACING WELDED WITH SUPER-STEELTECTIC 110

An Illinois welding shop received an order for six concrete septic tank forms. Welds on this job were in all positions, and interior bracing consisted of heavy angles set against sheet steel. Using conventional mild steel electrodes, welders soon ran into difficulty. Many angles and braces made the arc hard to maintain, and the deposit could not be properly controlled for the strong welds needed.



Super-SteelTectic 110, a new universal, all position EutecTrode was suggested by the Eutectic District Engineer. The highly exact control of penetration possible with this alloyed steel electrode gives excellent results on joints of varying thicknesses. The lower amperage minimizes danger of burn through, and eliminates spatter. Welds are exceptionally strong, too, as Super-SteelTectic 110 deposits weld metal near 110,000 psi tensile. (B-15)



Q. We have a bulldozer drive shaft, 3½ inches in diameter, that sheared in half. What repair procedure is recommended?

A. Vee the shaft out on either side of the break and clean thoroughly. A square butt joint is not recommended. High strength patented EutecRod 16FC, 3/16-in diameter should be used together with Eutector 16B Flux, which is painted on prior to heating. Joint should be designed with a gap to insure deposited metal throughout.

Q. Our flux for stainless steel brazing breaks down at about 1700°F. What can you recommend?

A. The "Eutector" series of T (Triple Strength) fluxes is designed for applications requiring sustained heating cycles or higher temperatures than are normally used in silver brazing. Consequently, the T fluxes are suitable for temperatures up to approximately 2000°F.

Q. In production of surgical instruments we have been using a conventional silver alloy that tarnishes badly. Require a thin flowing silver alloy of the same melting temperature that will retain luster.

A. EutecRod 1800 is free of cadmium, the element most responsible for tarnishing. Bonding temperature is approximately 1100°F. EutecRod 1800 is of the eutectic-type, having a narrow plastic range, and noted for its thin flowing properties.



Eutectic Warehouse—Service Centers
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1414 South Street, Phoenix, Arizona

EUTECTIC WELDING ALLOYS CORPORATION 40-40 172nd Street, Flushing 58, N.Y.

Gentlemen:

I would like further free information on the following:

B-13 B-14 B-15

Free: New 1958 180 page pocket Welding Data Book.

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Photos courtesy of National Screw and Manufacturing Company

"Controlled Dumping Results in Fewer Damaged Threaded Parts" . . . reports National Screw and Manufacturing Company's Cleveland Plant since their adoption of the new Powell tapered-nose box. The tapered-nose design permits better control of dumping with the result that product "rejects" have been materially reduced.

At National Screw this versatile open-end stacking unit doubles as working box or storage unit. In addition to minimum floor space requirements and excellent handling and stacking properties, the customer likes the tapered-nose design because it is easily handled by fork truck. In minimum head room areas it may be dumped by hoist.

The tapered-nose box is another Powell "first" . . . and an important contribution to more efficient mass materials handling. Literature upon request.

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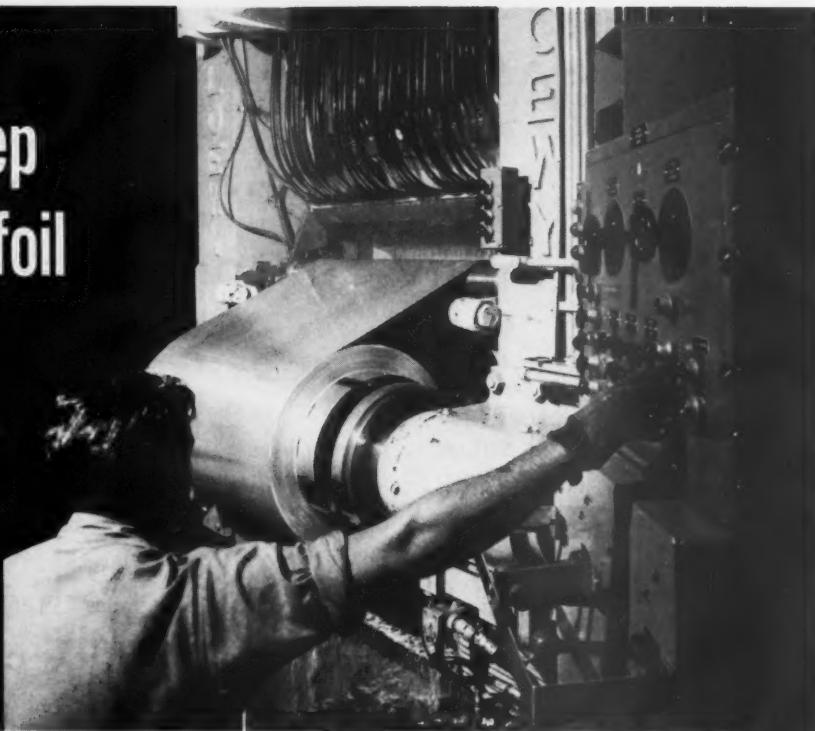
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PRESSED STEEL

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HUBBARD, OHIO

how to keep aluminum foil from shattering

*... at 35 miles
per hour!*



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At 35 miles per hour, excessive strain at any of the several reduction stages would shatter the extremely thin foil. From the original payoff reel through to the final rewind, uniform tension is provided by Reliance V★S Drives.

Reliance engineers built this drive specifically for this mill, to provide the constant uniform tension which is so important.

This application is typical of the many diversified jobs that Reliance V★S Drives are called upon to perform. There is a Reliance V★S Drive to fit your application.

D-1562

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Main control room—Where Reliance equipment provides more than 2,900 hp. to drive this mill.



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An Open Letter

from **Clingan & Fortier, Inc.**

to our many customers in the west

After eleven years of steady growth and expansion as a Western Distributor of Reynolds Aluminum, we recently decided that our future operations could benefit considerably by changing our company name from "Clingan & Fortier, Inc." to one which would convey both what we *sell* and what we *do*.

The new name we have chosen, effective September 1, 1957 is:

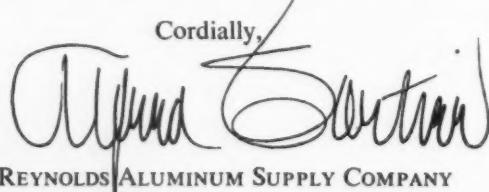
REYNOLDS ALUMINUM SUPPLY COMPANY

Briefly, we have merely "changed hats" . . . Our new one is the same size, shape and quality . . . The only difference is the name in the hatband.

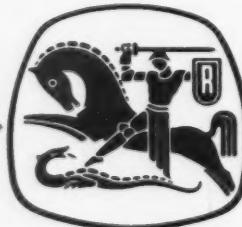
We believe our new name will receive some benefit from the sales development programs of the Reynolds Metals Company, whose products represent the bulk of our distribution activities. It will better identify our operations in the eleven communities where we now have local warehouses serving western industry and it should also provide instant recognition in all areas for the products we supply.

To all our customers and friends who have made our progress possible . . . our sincere thanks. Our multiple warehouse plan, supplying aluminum, brass and copper, carbon and stainless steel to you **LOCALLY** *when you need it*, will continue to serve you with the same courteous, personal attention.

Cordially,



REYNOLDS ALUMINUM SUPPLY COMPANY
President



Now... complete stocks, prompt deliveries

of Aluminum rod, bar and wire

from any of the 11 Western warehouses

of

Reynolds Aluminum Supply Company

Complete warehouse stocks

Experienced technical assistance

Fast, personal attention

...of rod, bar and wire in all sizes and shapes are only a phone call and a short delivery time away from any Western plant or shop.

You can rely on Reynolds Aluminum Supply for fast, courteous Western service...for regular shipments and emergency requirements that simplify your storage and inventory problems.

When you phone our customer service specialists, you talk with trained and qualified men who know the application advantages of aluminum rod, bar and wire in terms of *serving your particular needs best!*

On orders of any size...every time you need aluminum, phone your nearest Reynolds Aluminum Supply warehouse FIRST. You'll get the *exact* aluminum rod, bar or wire you need...*when you need it!* We believe our specialized aluminum service will please you and pave the way for *more* calls.

The number of Western plants and shops that have switched to Reynolds Aluminum Supply's combination of *specialized service and dependable quality* is growing steadily. Call TODAY!

ALWAYS CALL ...

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not just a fixture...
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More comfortable seeing due to even light level. No undue brightness contrasts. Designed for easy cleaning and lamping. Installed in four easy steps.

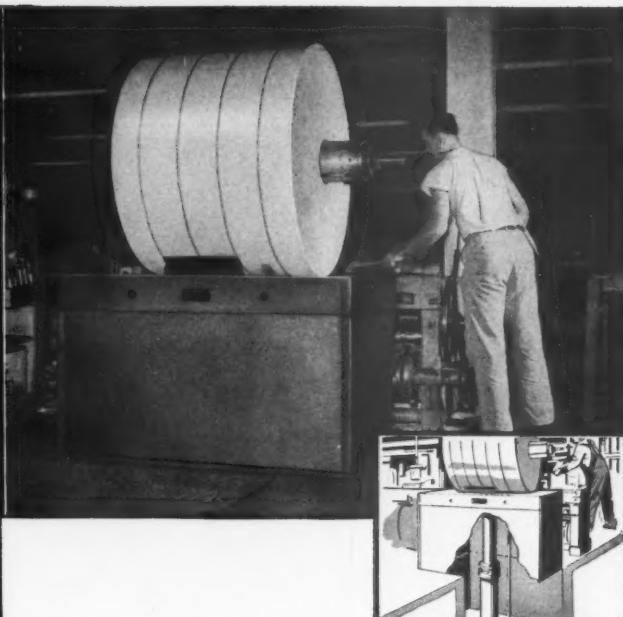
Ask your Electrical Contractor about SMOOT-HOLMAN **PERFECT VISION**, or write for "Manual of Better Lighting."

SMOOT-HOLMAN

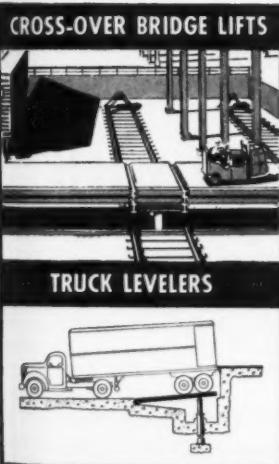
INGLEWOOD, CALIFORNIA

"IT COSTS NO MORE TO GET THE BEST, IN MANY WAYS THE COST IS LESS!"

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WESTERN INDUSTRY — October 1957



GLOBE MATERIALS HANDLING LIFTS SIMPLIFY YOUR LOADING



Increase productivity, reduce both down-time and accidents in countless materials handling jobs by using the Globe Loading Lift that best fits *your* need. And Globe has a complete line—Production Lifts, Bridge Lifts, Trans-O-Matic Ramps, Truck Levelers—for any job, large or small. Actual case studies show time savings of from 33 to 50% after Globe Loading Lifts were installed. Breakage is reduced . . . safety increases.

Low cost, standard components are used to tailor-fit any job from 1,000 lbs. to 50,000 lbs., for any lift up to 50 ft. Globe Lifts are easily installed . . . economically operated.

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PLANTS: DES MOINES—PHILADELPHIA—LONG BEACH, CAL.



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... for more details, circle No. 34 on Reader Service Postcard

How would you select a new Western plant site?

You're going to want to move your plant one day . . . and choosing the right spot can be the most important decision you make. Listen to what an expert has to say on the subject . . .

AUTHOR

SAM HALSTED

Industrial Projects
Engineer
Wilsey & Ham
Consulting Engineers
Millbrae, Calif.



MEMO TO PLANT EXECUTIVES: Soon your company will be looking for a new *Western plant site*, because you'll want to expand your operations!

Yes, relocation is in some stage of development in most Western plants. Now, do you know how to pick the best site for your industry? What to avoid? How to plan for the future?

Most of you can solve the problem of spending for new equipment. You know that you must assemble facts on the best types available; these facts must include first cost, probable life of the equipment, operating costs and possible salvage value.

Well, selecting new plant site involves much the same information. But gathering the necessary information may be more complicated. So this article will try to help you in picking a plant site . . . and to check the wisdom of your investment and its effect on your operations—just as you would any smaller plant investment.

The selection of a plant site is first made on an *area basis*, taking into consideration markets, raw materials, labor, transportation, power and water. You can gather the facts yourself or have them gathered for you. Then, you analyze the production costs and estimate markets and determine the area best suited to you.

Okay. You've picked your area. Now what? Well, you must pinpoint certain sites in this area. To do this you must outline your requirements

for transportation, labor, living and recreational advantages desired. Then you can have the site surveyed with these specifications in mind, or make inspections yourself, probably guided by an industrial realtor.

The final result of this second stage of site selection will be a collection of several possible sites, all more or less conforming to the desired specifications.

Now . . . at this stage it's possible to isolate the location problems in terms of *first costs*, *operating costs* and *salvage value*.

What generally are the site characteristics relating to these terms?

The *first cost* of the site embraces land, construction and cost of relocation into the new facility.

Operating costs include all facets of direct and indirect labor, safety, insurance, taxes, public relations and advertising.

Salvage value will be reflected in the probable loan value of the completed facility or the future possible sale value.

Since the life of a new plant is comparatively long, the amortization cost can be of lesser significance compared to operating costs. This means that the initial cost of land can be unimportant compared to the necessity of finding a site that will have proper operating characteristics.

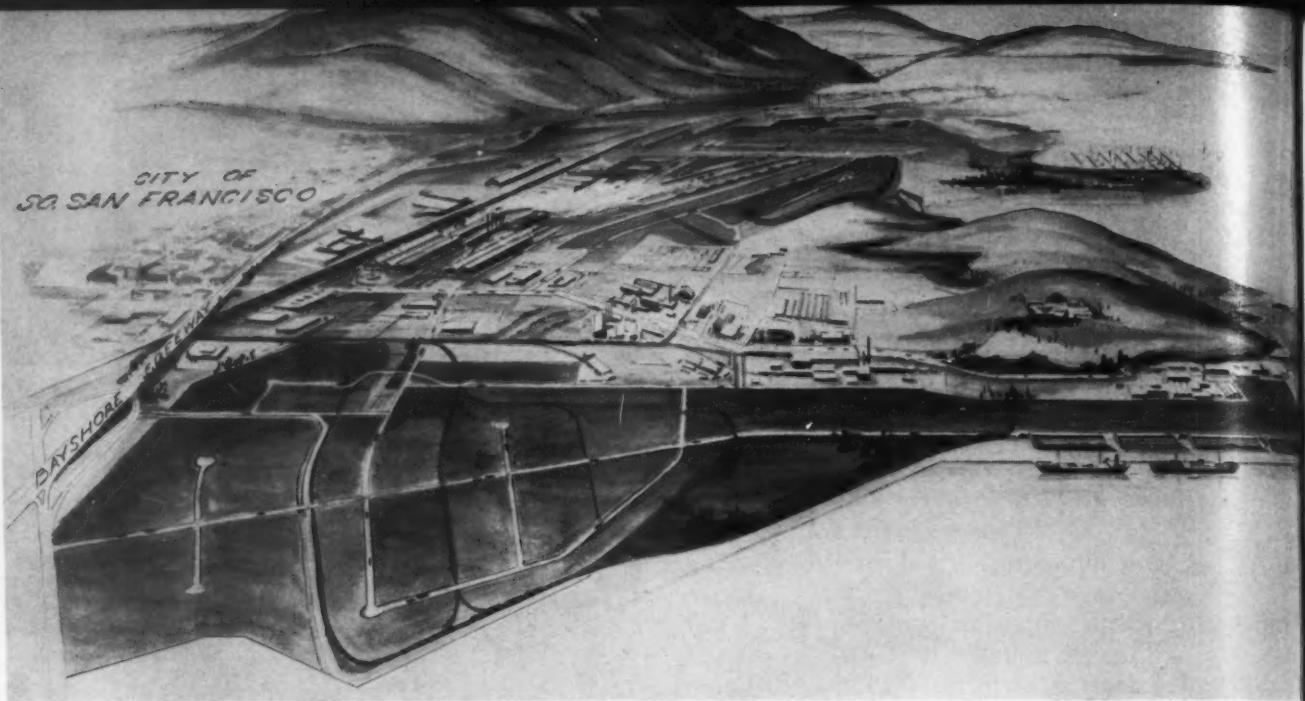
Now let's analyze the three factors of site selection.

Number 1 is first cost

A. Land price, which may be on either a square foot, frontage foot or acreage basis. Industrial land in the West is currently selling for \$500 to \$50,000 an acre.

B. Assessment costs for street improvements . . . and connection costs for various utilities. A large site desiring entrance into a utility district may be assessed a considerable fee. If municipal or other public agency approval is needed for permits, rezonings or annexation, a long delay may ensue, which could mean a considerable increase in building costs—if construction is necessary through the winter season.

C. Site topography and sub-soil conditions. We have about every type of soil condition in the West, including filled land through sand, clay to rock. If your site is extensive it is definitely preferable to have a topographical map prepared to determine the cost of grading and see if there are any drainage courses that will require diversion or culverts. Even a small site may require fill or grading not apparent from a cursory field trip. Sub-soil conditions as they affect foundation costs are extremely important. Often, it is possible to ascertain these conditions from closely examining surrounding industry *if their floor loads are in the same range*. And, a soils report from a recognized soils laboratory is good insurance against



TYPICAL OF LATEST WESTERN INDUSTRIAL PARK, this area in South San Francisco has four types of transportation available, and is laid out for proper traffic control, utilities and site adaptability. **Developer:** Utah Construction Co. **Engineers:** Wilsey & Ham.

a large loss. Location of the water table may have an important effect on first costs if basements, tanks or underground piping are to be used.

D. Offsite utility costs. Here in the West, industry is still pioneering new area. If you plan to locate outside an industrial area or planned district, it may be necessary to run long distances to sewer outfalls or water mains. It may also be required to construct drainage outfalls.

E. Zoning requirements, setbacks and deed restrictions should be examined to see what effect they will have on the layout design and construction costs. Fortunately, the West has been very progressive in helping industry settle. But, still, many areas have zoning ordinances and covenants for off-street parking, loading docks, storage control, landscaping and architectural control of building materials that—while desirable—may escape notice in preliminary cost estimates.

II. Operating Costs:

To make an estimate of comparative operating costs it's necessary to examine the site, the neighborhood, local ordinances, and deed restrictions to evaluate the effect of future growth and change on the site. This examination should be keyed toward the following items that affect operating costs:

A. Traffic. Examine the street pattern for access to the site. Are pavement widths adequate? Are intersections properly controlled? Do the streets leading to the major area traffic carriers run past shopping centers or industrial areas where trucks tend to block streets? Are streets properly maintained with adequate provisions for drainage? A site may be close to a projected freeway but what are the construction schedules and is the site close to a proposed interchange? If the site is in a planned industrial district or a general industrial area, what are the requirements for provisions for off-street parking? Is there control over truck loading or maneuvering in streets? An area that is only partly built up may become a traffic nightmare when fully improved because of improper design or control in the above categories. All these will affect both employee commuting . . . with costs reflected in turnover, lateness, and lost time for accidents, and also shipping and receiving . . . with costs reflected in higher rates and possible down-time. It is more often the future development rather than the present situation that must be taken into account in evaluating traffic problems.

B. Utilities. Will water mains maintain proper pressures and are fire hydrants spaced properly for minimum insurance rates? In addition to

present water costs, is the area growing so rapidly that inadequate water supply will result in greater costs? (Some areas of the West are mighty dry, you know.) Are sewer mains adequate for area growth or will there be future assessments for new outfalls? Will new treatment plants be necessary? Are storm drainage lines and street catch basins adequate to take peak run-offs, preventing yard or dock flooding and delaying commuting, shipping and receiving? In addition to unit costs for all utilities, are there adequate provisions to minimize shutdowns or failures with resulting down-times?

C. Site restrictions. Are there any easements, setbacks, or operating limitations such as storage or burning (smog control, you know) that will affect your operation? Site shape and area should be examined by means of quick layouts to determine whether adequate yards are available where needed or whether wasted space will result from the necessary arrangements. Will spur track locations, car storage and track grade requirements conflict with truck access and loading, storage and employee parking lots and access? A very important item is the possibility of future plant extension and how the site lends itself to flexible layout. The possibility of optioning or leasing adjacent land for expansion should be explored.

D. Community relationships. In addition to the present cost of taxes, the particular community should be surveyed for the level of service it provides the industrial area. Police regulation, street maintenance and cleanup, fire protection and garbage disposal will affect insurance costs, maintenance costs, traffic and general plant appearance. The attitude or "business climate" as it is now called of the community, is important as it affects future taxing outlooks and the attitude of encouraging more industry to share the area and contribute to markets and economic base. Fortunately, there is a heightening interest in the West to attract industry to communities.

III. Future value or "salvage value"

The factors involved in long term values are the flexibility in the type of use and ease of expansion of the site and improvements, the character of development in the surrounding area, the appearance of the district and the continuance of proper operating characteristics as previously discussed. It's impossible, of course, to predict exactly what future conditions will surround the site but there are certain elements in the selection and design of the site itself—and certain ordinances and controls for the development of the area around the site—that can insure a measure of certainty in long term value.

A. Characteristics of the site. A site which is convertible to other uses or capable of long term expansion will provide financing more readily and furnish a higher sale price than a site which can be adapted only to certain types of use. A factor in flexibility is the type of transportation available to the site. While rail facilities or the presence of nearby truck terminals may not be required by the present proposed use, they are of importance to banks and insurance companies because of the higher sales value attached to the site. The site itself should be one whose shape allows full utilization and for which there is a provision for expansion in as many directions as possible. Building design should be accomplished with flexibility of use in mind—allowing for spreading out or up.

B. Future character of the surrounding area. Since more severe controls are imposed on industry adjoining land being used for different purposes it is more desirable to locate in an area which is zoned exclusively for industry. Fortunately, the

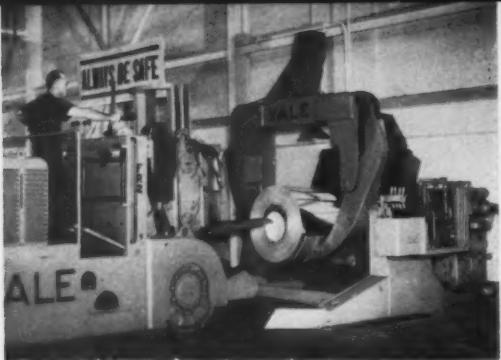
West has been a developer of this "industrial park." An inspection of the probable development (by zoning) along routes to the major feeders or freeways should be made to see if any major sources of congestion can develop in the future. The regulations on off-street parking and off-street loading should also be checked for these same routes even if they are zoned exclusively for industry.

C. Control of the development of industry. Even those sites located in planned industrial districts or areas zoned only for industry can be adversely affected by later development. Covenants for industrial districts should be checked for their control of set-backs, landscaping, type of build-

ing construction, off-street parking and loading, signs, storage and the procedure for architectural approval. Many newer zoning ordinances will also regulate these items. When uniform standards of development are specified and enforced, there is maximum assurance of the continuing value of the individual site. In many Western locations, serious attempts are made to construct attractive industrial facilities. Yes, even when you must rely on realtors or consultants to select your site, application of the familiar methods of the economy study can be made with minimum research to check the proper relationship of *first cost, operating costs* and long term or "salvage" values.

Your Check List for Site Analysis

Information needed	Where found
Available sites	Industrial realtor
Municipal charges (utilities, streets)	City or County engineers, offices of utility districts, title reports
Permit procedures, zoning, deed restrictions	Local planning dept., building inspector, developer, title report
Site topography	Local civil engineer, site inspection
Sub-soil conditions	Surrounding industry, soils engineers
Drainage history	City or County engineer
Offsite utility costs	City or County engineer
Transportation (rates, service)	Railroads, trucking associations
Traffic (local, highways)	Site inspection, planning dept., City or County engineer, State Highway Dept.
Utilities (unit costs, reliable service)	Office of public utilities, developer, industrial realtor, City or County engineer
Community relations	Local industry, City manager
Control of your industrial district	Title report, district developer, zoning ordinance
Future surrounding development and master plan for area	City or County planning department



A FORK LIFT takes coil from an upender . . .



AND OFF IT GOES on the line to be sheared into plate at 600 ft. a minute

CONTROLS: to boost quality, shave tolerances

This plant improved an old-style operation by installing intricate controls. Here's how you can use precision equipment to improve your operation:

THE FINER THE TOLERANCE and the higher the quality, the more intricate must be the controls and mechanisms on your machinery.

The American Can Company demonstrated this principle when it recently installed its revolutionary new tinplate plant in Oakland, Calif. In this plant are the first Western lines for processing tinplate from coils.

These lines, operating at speeds up to 600 linear feet of steel per minute, automatically inspect and shear coil steel into rectangular sheets ready for lithography or direct manufacture into plain cans such as those used for fruits and vegetables.

The new facility opens the door on a new chapter in the history of can manufacturing. Based on research and engineering studies now well under way, the next step will be the production of cans direct from coils, without

the intermediate stage of "sheeting."

Actually, the process at Oakland is much like that in a steel mill—with this significant difference; tolerances are much more critical (to .005 in.) and quality (remember you eat canned products) antiseptically high.

The lines are long complex mazes of machinery. Built in part by F. J. Littell Machine Co. and the Wean Engineering Co., Inc., they also contain intricate controls and mechanisms manufactured by Pratt & Whitney Co., General Electric Co., Link-Belt Co., The Bellows Co., and other well known producers of precision equipment.

70,000 food cans

Coil steel comes to the Canco plant in 15,000-lb. coils, each with a length of three miles and containing enough metal to make 70,000 standard-size food cans. The coils are transported from storage to the lines by Yale forklifts and are up-ended by a Yale upender.

The first step toward precision and quality is taken when the coil passes through the roller levelers. These levelers press out any bows or bends in the coil to prepare it for better lithography or coating. Roller pressure and setting is dependent upon plate condition.

Then the coil passes through a Pratt & Whitney thickness-gage which indicates whether the sheet is within tolerance limits.

PRECISION CONTROLS regulate stacking units in American Can Co.'s new coil steel processing plant.

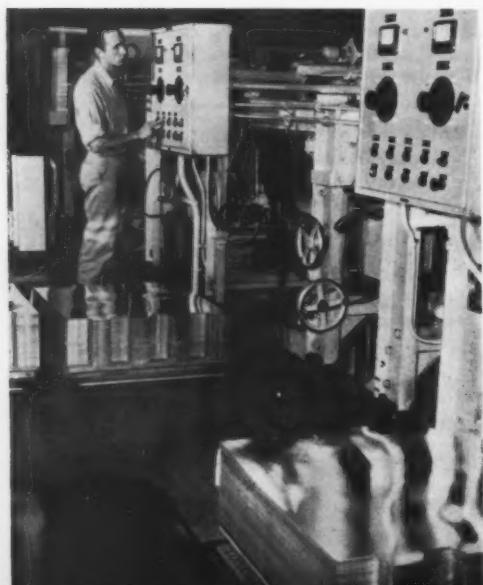
This gage has a scale which gages from plus or minus 10% of allowed tolerances, and can be set to reject plate which varies as little as .0001 in. thickness.

A General Electric pinhole detector can spot holes down to .001 in. in diameter. A very sensitive electronic beam passes through the sheet and spots the holes. This information is translated to a Pratt & Whitney synchro-timer (a reminder wheel) which remembers what particular part of the coil is bad. After that part of the coil has been sheared, the particular piece is automatically rejected when it reaches the reject stacker of the line.

Visual inspection also plays an important part in quality control. On top and bottom of the coil are mirrors, reflecting both surfaces. The operator constantly watches these mirrors to detect any blemishes (grease, scratches, etc.) which would mar quality. By pressing a button on a control panel, that particular part of the coil can be rejected.

Rejection is accomplished when the sheared coil passes between two rollers at the end of the line. These rolls are magnetized. Unless a button is pushed (or the synchro-timer activates a control) the top roller remains magnetized. It thus passes the good sheets over to the stacker. But when a control button is pushed or the synchro-timer activates the circuit, the bottom roll becomes magnetized. This deflects a sheet to the bottom roller which sends it to a reject pile.

Shearing is performed on the Littell lines by a shear run by a General Electric gear motor. The plate is fed



under the shears by means of feed rolls which measure out exact sheet lengths. In some cases, a scroll blade is used that cuts the sheet to exact specifications for can making.

The Wean lines have a "dancing" or flying shear which dances 200 cuts-a-minute rhythm as the plate flows under it at 600 ft. per min. These shears are gear driven by a General Electric unit.

After plates are sheared, they go to classifiers. But before being stacked, samples of the sheet are taken out and checked by the operator against a gage block. If the sheets are off-size, the line can be adjusted easily. In any case, though, a quality control man

checks the line each hour to make sure the equipment is operating precisely.

Stacking is aided by three Link-Belt PIV units (on the Littell lines) and three General Electric classifying control panels (on the Wean lines) which regulate the speed of belts. This variable speed control is of utmost importance as it regulates the order and manner of stacking.

Stacking is done on lift tables, which drop automatically as the stack grows higher. On the Littell lines, a Bellows air cylinder adjusts the height of the table; on the Wean lines a Logan hydraulic lift table is used.

When the stack is full, the lift table is down to floor level, where it is rolled

off by power-driven conveyor rollers.

Stacks are already on pallets and they are carted by fork lift to storage areas, for use in the can making plant next door (Litho & Enameling Department), or are taken to strapping stations for shipment to other Northern California Canco plants.

Cardboard is put on both ends of the stack to protect it from abrasion and angle irons are placed on each side. Then a Griplock wire strapper is used to bind up the package.

The sheets are now ready to go into the can making plants for processing into cans. And the quality of the cans is assured by the intricate control that has gone before.

Solving large-area material handling

HANDLING MATERIAL over a 14,250-sq. mi. area is a whopping job—as Southern California Edison Co. will testify.

To give you an idea of the scope of the operations, Southern Edison's general stores department plant covers approximately 33 acres and contains the communications building, general stores, salvage department, transformer yard, repair shop, etc. There are 23 major buildings in this group covering $7\frac{1}{2}$ acres, and approximately 6 or $6\frac{1}{2}$ acres of buildings are accessible to power equipment. In addition, there are 10 acres of yard area for storage and handling.

To serve the company's large area they have established 31 district stores. These are self-contained, each having storerooms, material handling equipment, field trucks and personnel to handle all functions of the utility within its district. Materials, supplies and equipment are shipped to the district stores from the general stores department and direct from vendors.

Each store has one Hyster lift truck and one or two "Karry Kranes," equipped with pneumatic tires.

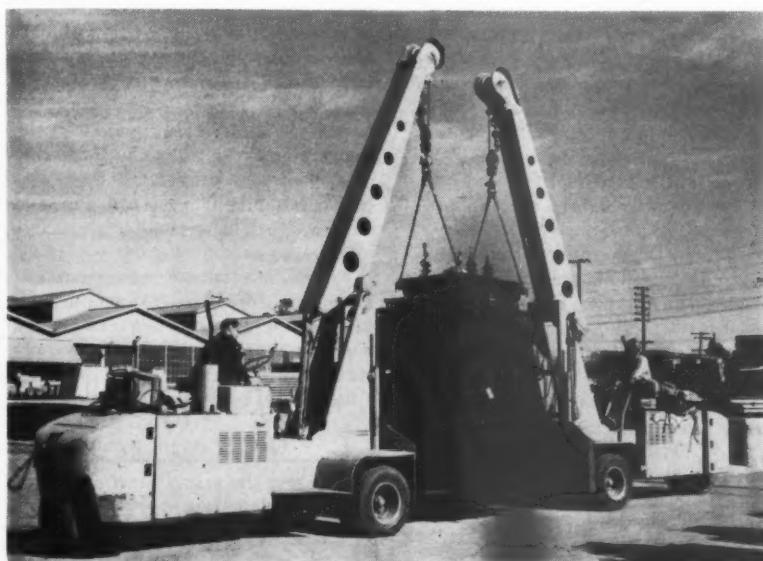
The generating plants, sub-stations and central garages also use Hyster equipment. Each district store is self-contained except for generating and distribution facilities and could be considered similar to the public utility of a small community.

Southern California Edison, by using Hyster equipment, has been able to effect a savings and expand

its operations without adding either building or yard space for storing material and equipment. In 1953 the company's general stores department handled a total of 45,953 tons of materials and equipment, or a total of 353,480 pounds per day. Based on an eight-hour day they handle 44,185 pounds per hour.

An example of savings is illustrated

in the company's use of lift trucks in the handling of insulators. Formerly it took 14 men an eight-hour day to unload and store a car of insulators. Now using one lift truck, three men can complete the job of palletizing, unloading, transporting and storing in the yard in three hours, or a total of nine man-hours, a saving of 103 man-hours per car.



TEAM WORK—Two "Karry Kranes" team up to lift this heavy transformer. Just one example of how Southern California Edison licks its large-area material handling problems.



DISTINCTIVE YELLOW COLOR of the fire resistant fluid makes it easy to spot leaks quickly . . .

By **Lawrence Jackson**
Plant Superintendent
Withrow Die Casting Co.
North Hollywood, Calif.

THREE'S nothing wrong with a petroleum oil being used as a hydraulic fluid—that is, if it remains safely inside the hydraulic system. But let a line break or a hose rupture in the vicinity of high temperatures, and normally placid petroleum oil, shooting out under high pressure as an air-oil mist, will ignite instantaneously. This ignition can take place even when the source of heat is as far as forty feet away from the broken line.

With a flash point of 375 F. or higher and an autoignition temperature over 700 F., these oils become fire hazards if exposed to such ignition sources as molten metal, hot metal surfaces, open flames, sparks and arcing electrical equipment. The results can be serious, costly and even disastrous.

Costly flash fires

In our plant, several years ago, a line extending over a pot of molten zinc broke and about 120 gal. of the hydraulic petroleum oil pumped into the pot. There was an immediate flash fire that spread rapidly wherever the oil flowed. All the electrical panels supplying the building plus the power

transformer burned out; the office and roof were ruined; water flooded the plant. Cost of the damage, including the rebuilding of the gutted die casting machine, came to \$35,000.

On another occasion, a split developed in a high-pressure steel line feeding the injection cylinder of a machine die casting aluminum. Over 120 gal. of pressurized mineral oil sprayed into the air. The machine operator's first reaction, a normal reaction under the circumstances, was to get away from the area as quickly as possible. Since the cut-off switch was located on the opposite side of the machine, the operator did not stop to pull it before dashing out of the danger zone. As a result, the pump continued to operate until there was no oil left in the reservoir. The machine was out of service for over three months.

In addition to the extensive damage caused by these fires, production was disrupted, holding up deliveries of the zinc and aluminum castings we supply for building and plumbing hardware, automotive accessories, commercial

gas valve bodies, model gas engines and many other industrial components.

Safety combines with economy

When the management of Withrow Die Casting Company decided to switch over to a fire resistant hydraulic fluid, we were primarily concerned with the safety of the workers, plant and equipment, but economy was a factor that couldn't be overlooked. For these reasons we selected Irus Fluid 902, a water-based emulsion type hydraulic fluid manufactured by the Shell Oil Co. In addition to its excellent properties as a fire snuffing fluid, it is also economical, costing up to one-third less than other conventional fire resistant fluids.

Irus Fluid is unique in that it refutes the belief that oil and water cannot mix. A combination of petroleum hydraulic oils, water and emulsifiers, it turns instantly into steam and vapor when exposed to any source of ignition, either in its liquid form or in a high-pressure spray.

All of our die casting machines have been charged with this fluid during the past two years. Breaks in hoses, pipes, and fittings have caused no fires, no worker injuries and no plant or machinery damage. Two specific instances can be cited.

One line break discharged about 40 gal. of the fluid onto a pot of molten aluminum. After the steam blew out, only a small flickering flame re-

OCTOBER IS FIRE SAFETY MONTH . . . so it is only fitting that we emphasize fire protection in our October issue. We hope the article on this page, the descriptions of how sprinklers and extinguishers work on various fires (page 55), and the fire protection manuals on page 65 will give you added fuel . . . to reduce fire hazards the year 'round.

Here's how one Western plant

used a new fluid to put the damper on

fires resulting from escaping hydraulic oil. Easy change over, easy main-

tenance.



FLUID IS TRANSFERRED in and out of machines by a 1/3 hp. Mayhew electrically operated pump unit.

ained which was confined to the pot and died out quickly. On another machine, a hose connecting a hydraulic core pull severed, and the fluid sprayed out under a pressure of 1,000 psi, drenching the operator and the surrounding shop area. Because there was no danger of flammability, the operator was able to shut off the power supply and stop the flow of fluid. The machine was back in operation shortly after the defective hose had been replaced.

Change over technique

While switching from the conventional petroleum oil to the fire resistant fluid was not difficult, care was taken to ensure the thorough cleanliness and tightness of the hydraulic systems. Proper installation of the fluid and prevention of system contaminants has resulted in trouble-free operation. The identical changeover procedure was followed for each of our eight die casting machines: five Reed-Prentice of 275-ton capacity and three B & T of 450-ton capacity.

1. Drain out all of the mineral oil.
2. Use Irus as a flushing medium and run for 15-30 min.
3. Drain out and recharge with Irus. Run for one week.
4. Drain out and recharge with the fluid.

Besides being easy to install, the fire resistant fluid is also advanta-

geous in that no new or special machine components were required such as packings, O-rings seals, etc. In fact, we found that the machine worked better by removing certain components—screen-type filters on the suction lines were removed from the tank and the fine filters on the intake to the pump; fine oil purifiers were also taken out since effective machine operation was possible without them.

Maintenance

Equipment checks are made daily but major problems are handled on the week-ends when the plant is shut down. Leaks are fixed, fittings are tightened and the hoses replaced as necessary. The distinctive yellow color of Irus Fluid has helped immeasurably in cutting down make-up losses. Leaks and seepage show up plainly and the color of the fluid remains constant in operation. Make-up runs to about 70 gal. monthly for all machines, compared with nearly double that amount for mineral oil. Temperature of the fluid is 108-110 F., much cooler than formerly.

The pumps we use are Vickers VO combination low and high pressure, double vane. Some of the machines are equipped with 15 hp. (1,000 psi.) pumps while others have 25 hp. pumps (2,000 psi.). Only negligible wear was encountered in the high-pressure cartridge in the pumps, the interior face of the eccentric ring becoming un-

even. This cartridge lasts about six to eight months and is replaced at a cost of \$20.00.

Pump part replacement costs run to about \$200 yearly for all machines and this is considered negligible in light of the safety afforded by the fluid. Pump service life on some of the machines is better than others and we attribute this to better design of the hydraulic circuits.

It is interesting to note that for the past year there has been no wear whatever on the 48-gal. VC Vickers pump on a B & T machine operating at 2,000 psi.

A one-third hp. Mayhew, electrically-operated pump unit is used for the transfer of fluid in and out of the machines. This pump was equipped originally with a filter, but it was removed because of its high density.

Because there is always the possibility of some evaporation of water from the fluid, water content is checked monthly. A solution consisting of 50% fluid taken from a machine and 50% acetone is shaken in a tube and then allowed to settle out. Thus far the water content has remained stable at 35% and we have yet to add water.

In summary, we regard the introduction of fire resistant hydraulic fluids as one of the finest advances made in the die casting industry. If what we have described will prevent just one fire, this article will have been more than justified.

"Avoid the mad scramble . . . a well directed course, prepared by experts, will lead the best brains to your firm"



says George Miller*

Q. Mr. Miller, the term management consultant is a vague one in the minds of many businessmen. Just what does a management consulting firm do and what services do they render?

A. A management consulting firm investigates and provides independent counsel to client management on specific procedural and manpower problems, general organization and planning aspects of business. These services include basic operation analysis, organizational studies, evaluation and development of recruitment and training programs as well as executive manpower. Some consultants include aptitude and psychological testing, depth interviewing and active procurement of key management and technological personnel. Essentially there are two types—(a) the general consulting firm that maintains a fairly large staff and supplements client management in most of the areas mentioned, (b) the smaller firm that specializes in certain areas.

Q. Why should a management consulting firm wear my shoes? What can they do that a competent executive cannot do for himself?

A. A competent management makes no attempt to step into the shoes of a client firm's executives. However, as an interested third party, the consultant is able to concentrate on specific problems at hand, scheduling sufficient time to accomplish desired results. Few executives can arrange to do this. Also, because the consulting firm is free from any bias or internal pressures, it is able to be completely objective. Additionally, the consulting firm brings to each assignment valuable experience gained through handling many diversified problems for other firms. This facilitates the discovery of practical solutions.

Q. Does the employment of a management consultant imply that there has been weakness in the management of the client firm?

A. On the contrary, this has never been true and today industry accepts the fact that the employment of outside counsel is evidence of progressive management and fuller discharge of managerial duties. This is evidenced by the fact that the giants of industry often retain outside consultants in addition to their staff people and control departments.

***GEORGE MILLER** has had extensive management experience both here and abroad. A principal in the firm of Chase, Ward and Gardner, he represents one of the best known consulting firms in the West, specializing in manpower and motivation analysis. In assisting client companies with other management problems, he emphasizes the primary importance of taking accurate inventory of the client's living assets—its supervisory personnel. Mr. Miller's comments are of vital interest today because the scramble for top talent—together with a recognition of the costs of mediocrity—has brought the recruiting, training and development services for management consulting firms to the attention of industry more than ever before. These problems are more acute in the rapidly expanding Western industrial areas than anywhere else in the world.

Q. Which is preferable, a firm which specializes in one phase of the management service, or one which offers a complete program?

A. An analogy may be helpful in trying to answer this question. Individuals consult the medical profession for two basic reasons: To maintain health and prevent illness in the process of activity, growth and development. To get help when illness has already occurred. General practitioners and specialists inter-act on behalf of the patient. More often than not, a professional diagnostician is seriously needed to avoid needless loss in time and money.

Similarly, business and industrial firms engage consultants to assist internal management in preventing and correcting the normal problems of expanding enterprise. The firm offering a complete program is in effect a group consisting of several specializing consultants under one roof. The specialist firm concentrates its total effort in one particular field.

Q. What is the usual cost to a firm which engages a management consultant firm?

A. The cost of retaining a management consulting firm will vary according to the job which needs to be done and the arrangements made between the client firm and the consultant in a manner similar to other professional services which might be engaged by a business or industry. Essentially the cost is figured by determining the amount of time required per man assigned to the job. Consultants' fees range from \$15 to \$30 per hour.

Q. What can you expect for a proffered \$100 survey of your firm by a management consultant organization?

A. It depends upon the extent to which the consultant subsidizes the survey in hope of additional business. Our firm depends on the general survey as an independent and important source of income. It must stand on its own feet. At the conclusion of a survey we sometimes find it more feasible to recommend other specialists than to maintain a specialized staff in certain fields.

Q. What is the average length of time a management consultant firm is engaged for?

A. However long it takes to complete the agreed assignment. This, of course, will depend on the needs of the client firm and may be a few weeks or several months or more.

Q. How important is executive and technological procurement in the industry today?

A. It has been said that the general shortage of brain-power is taking its place beside death and taxes as one of the basic conditions that business management is going to have to deal with for a good many years. As our industrial society grows more complex, it depends more and more on machines. This dependence on machinery puts a greater and greater premium on human brainpower and the creative intelligence that is lacking in machines. There is an enormous demand for people of high intelligence who are capable of using it. Human brainpower is riding a high pedestal today. There is a rapidly multiplying need for highly educated, creatively intelligent men. This need has multiplied so fast that education facilities are hard pressed to keep up with it. As the result of this condition, industry as a whole is scrambling for top brains. Far-sighted business men who retain competent management consultants for the purpose of setting up and operating a sound executive and technological employee procurement



"This dependence on machinery puts a greater and greater premium on human brainpower and the creative intelligence that is lacking in machines. There is an enormous demand for people of high intelligence who are capable of using it . . ."

program are getting the cream of the crop because they are not scrambling with the herd. Instead they are following a well directed course, prepared by experts, which will lead the best brains available to their firm.

Q. What part does a management consultant play in an executive procurement program?

A. The duties of a management consultant firm when retained to conduct an executive procurement program are many fold. To do the job properly the consultant firm must analyze the job profile, counsel on qualifications, experience and future growth, counsel on remuneration based upon competitive market conditions, analyze the market for talent, conduct a comprehensive search, provide a complete professional evaluation of all candidates, counsel on the advantages of the client company and counsel on the final selection.



"It has also been found that it is often difficult for a client to attract and interest a much needed executive because of a client's subjective position. An objective third party presentation to the candidate may be more effective . . ."

Q. Why is a management consultant often able to conduct an executive procurement program more efficiently than the client firm?

A. A management consultant is able to give an executive procurement program the concentrated and uninterrupted time required. It is able to function as a third party through well established centers of reference. In addition to this, successful employed executives and technological personnel constantly get in touch with reputable management consultant firms on a highly confidential basis. This is a source of manpower which is available only through a professional intermediary. In addition, many men are in contact with management consultants who will consider a change only on the recommendation of such a firm. It has also been found that it is often difficult for a client to attract and interest a much needed executive because of the client's subjective position during negotiations. An objective third party presentation to the candidate of the career opportunity offered can often be far more effective than when presented by the client company.

Thank you, Mr. Miller.

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How a large firm licks small handling headaches

... Yes, the world's largest extrusion plant has the same M-H problems you have. Here's how they solved them ...

MATERIAL HANDLING at the West's (and the world's) largest extrusion plant involves the petty problems found at the smallest plant.

Sound paradoxical? Well it isn't, when you remember that the Reynolds Metals Co. plant at Phoenix, Ariz.—with 26 acres under roof—is not a mass production operation. It is a job-lot operation making aluminum extrusions in myriad shapes, sizes and alloys, in relatively small quantities.

Conveyorizing is impractical because, instead of a straight-line-flow, there is no consistent sequence of operations. Each order goes through some, but not all, of the 40-odd processing stations—an average of 12 to 15 steps for each order—and in diverse sequences.

Such complexity makes efficiency of material handling a prime factor in controlling total manufacturing costs.

High capacity bridge cranes traveling along each of the 80-foot-wide bays throughout the plant were original equipment when the facility was built during World War II. The majority of cranes are equipped with mansaver grabs to move products from the extrusion presses to such subsequent operations as heat treating, aging ovens, stretching, roll contour-

ing, untwisting, buffing and sawing.

Except for irrigation tubing and oil field pipe, everything is made to customer specifications. The bulk of the metal moves through the various operations in special-stacking 15-ft. metal racks designed to fit into the mansaver grabs whose jaws are remotely controlled from the crane cabs.

Throughout the mill are located a number of individual monorail systems, portable "A" frames, and Gantry or jib cranes for special handling as required by various manufacturing processes.

Finished materials are primarily handled with slings and belts hooked onto the mansaver grabs. After developmental and testing work during the last six months, the manila ropes and belt slings have been replaced with specially fabricated nylon slings which have a number of advantages.

The nylon slings resist solvents, oils and greases, have greater capacity and safety, are lighter and easier to handle, and can be pulled off the bundles without damaging metal surfaces. A number of firms have recently entered into developing and marketing these synthetic fiber slings.

With rapidly fluctuating product mixes complicating storage and out-



SMALL-LOT ORDERS of aluminum extrusions ready for shipment are moved from the packaging area to loading docks by means of rope slings attached to bridge crane.

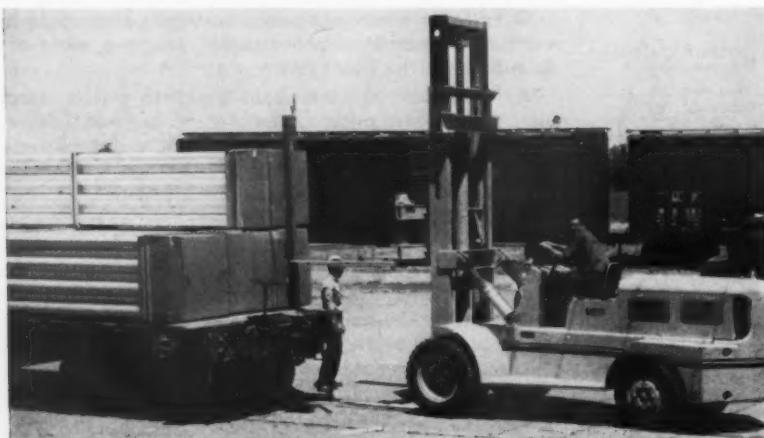
bound shipments, Reynolds found it needed increased mobility to maintain maximum output per man-hour and minimize indirect costs. This has been accomplished through a detailed material handling analysis which drew particular attention to the problems of bridge cranes and their limitations.

Crane interference and long empty backhauls were evident due to the peculiar dock and inside loading ramp locations. To alleviate these conditions, most of the materials not requiring indoor warehousing have been shifted outdoors to field storage areas.

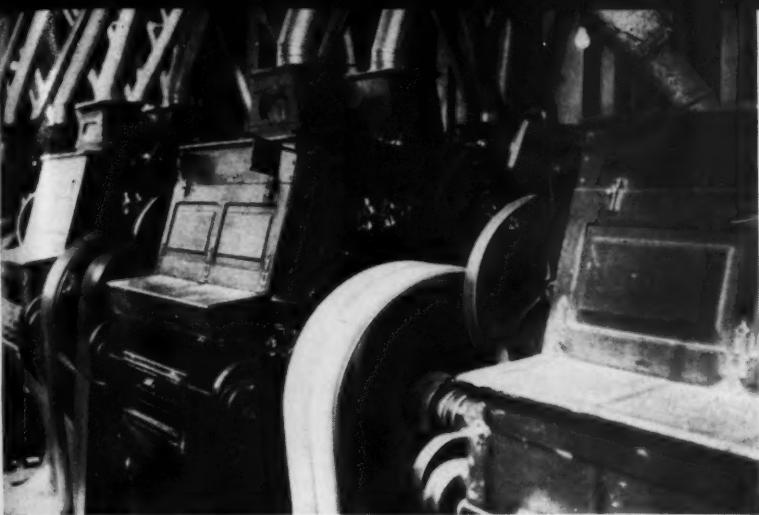
A heavy, high capacity industrial fork truck was purchased to move racked, palletized and unitized finished products to outdoor temporary storage locations, and thence to outside loading areas where shipments are put aboard common carrier equipment.

Bundles 40 feet long and weighing up to five tons each are handled successfully with this fork truck. Increasing use is made of jumbo unit loads to move more material in less time.

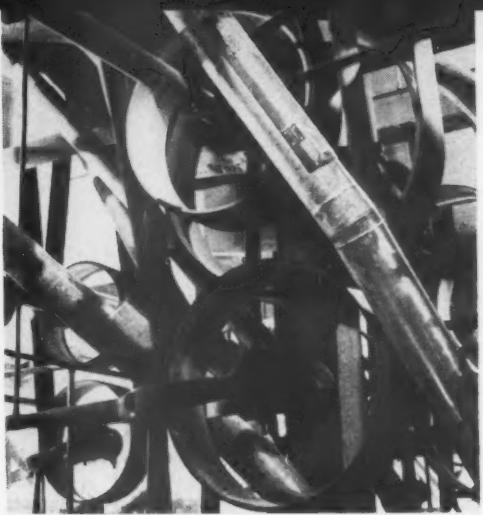
Additional material handling studies are currently underway, all with the goal of reducing handling steps, cutting indirect costs and facilitating customers' handling upon delivery of shipments.



HEAVY DUTY INDUSTRIAL FORK TRUCK recently acquired by Reynolds for loading unitized bundles onto flat cars. The bundles of piping shown weigh from 7,000 to 10,000 lb. each.



AND AWAY SHE GOES! . . . first break or roller in foreground at the head of the mill. Each consecutive mill stand has finer roller face.



AND UP . . . a view of one of the main line shafts which turns a bank of roller mills directly above . . .

Power in vertical rhythm keeps plant on the beat

Central drives, line shafts, wheels and belts transmit power up and up in this plant to run machinery smoothly.

POWER—in vertical rhythm—pulses through the Fisher Flouring Mill Co. at Seattle, Wash., to run a complex array of machinery smoothly and efficiently.

This arrangement has enabled the mill to operate on an almost completely automatic basis—significant when you think of the multitudinous milling and separating operations required in the process, which, until comparatively recent times, functioned as an ancient art.

Each mill has a central drive which transmits power to a battery of roller mills by means of line shafts, wheels and belts. For example, Fisher's Mill No. 5 is driven by a 400-hp. General Electric Co. slip-ring induction motor operating on 2,400 v. Power from this motor at ground level is transmitted up through slots in the ceilings to two 6-in. line shafts, each the length of the mill, about 100 ft.

The shafts turn at 240 rpm. and mount an army of wheels pulling belts which again rise to another level. Each mill, then, appears to be an enormous vertical arrangement like a tree, with the power source at the bottom, the belt transmission moving upward to the banks of machines spread on each floor.

The up and down movement of the wheat in the mill from the first "break" to the bolting machines or

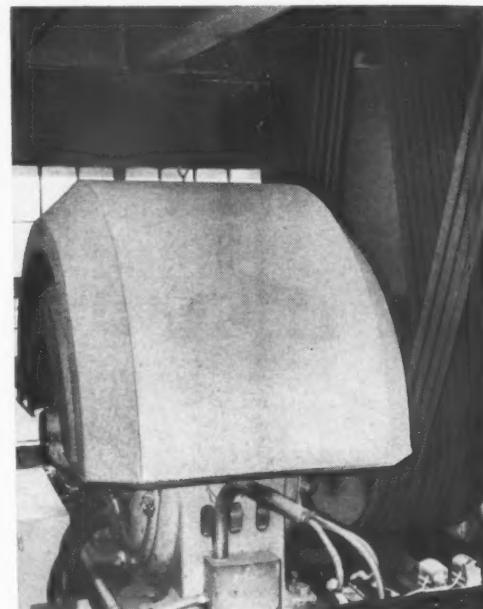
sifters (frames covered with fine silk cloth do the actual sifting) and on to the next finer rollers and the next bolting, etc., is accomplished by a maze of galvanized metal chutes and spouts running throughout the mill.

These chutes carry downward by gravity; to move grain upward they enclose narrow conveyor belts fitted with scoops. These elevators are powered also from the main shafts and carry wheat to the top (6th) floor of the mill. From here wheat drops to its first "break" on floor 2 and is raised again.

Then it falls to its first sifting on floor 5 and down to the reels and purifiers on 4 and 3, and to the second break on 2. Each of the 11 times this is repeated brings a yield of fine flour, bran and shorts (fragments of the fibrous outer layers) and the wheat germ itself, all of which are neatly separated.

Some levels of the plant are powered independently by a 60-hp. motor operating the bank of sifting boxes. Incidentally, the eight parallel rods suspending the sifter at each corner are not metal but $\frac{3}{4}$ -in. ash wood dowels. They allow the necessary horizontal movement for sifting action within the box.

A unique mode of transportation that emphasizes the vertical flow of work is the man-lift, a 12-in. wide,



AND UP . . . main drive for mill is this 400-hp. General Electric Co. slip-ring induction motor . . .

POWER GOES UP . . . independent drive powered by 60-hp. Westinghouse motor operating a row of sifting boxes . . .



continuously moving, belt with foot- rests and hand-holds for carrying workers up and down through holes in the floors the entire height of the mill.

Like so many wooden pipe organs in a row, the roller mills themselves are worthy of note. Calculating the speed of rotation, diameter of rolls and depth of flute for each must have been an eye-crossing piece of work for the original designers. There are eleven mills in each of the two parallel rows, all driven by the two main shafts directly below.

Graduations in flute depth range from 1/16 in. in the first break to the last rollers in the series which are perfectly smooth. Each roller in a pair turns at a differential rate to effect the desired clean breaking of the kernel. The last few mills are designed to extract the velvety white flour from the middlings—all the particles that have failed to pass through the bolt-

ing frames and which were formerly a loss to the miller.

Last tailings or "red dog," materials which were not siftable at the end of the process still have value and are used in feeds and glue products.

Electric power is delivered by Seattle City Light Company, flowing at 13,200 v. into Fisher's transformers. Six of these are housed in a small concrete building at the foot of the towering grain elevators. The transformers are General Electric oil-cooled units with a total rating of 4,000 kva.

From this station power is transmitted at 2,400 v. to the driving motors of mills 1, 2, 4, and 5. Lighting for the plant is handled through other transformers rated at 300 kva. which step down from 2,400 v. to 120 v.; the laboratories and offices are lighted by power from a dry transformer reducing from 440 v. to 120 v.

Radiotelephones save time, leg work, boost efficiency

QUICK COMMUNICATION between a planing mill office and lumber-carrying vehicles operating in the lumber yard has been achieved by Pack River Lumber Co. (Sandpoint, Idaho) through the use of low-range short wave radiotelephones.

Pack River officials estimate that the radiotelephones have saved 35 to 40% in time in the movement of lumber, as well as making a marked contribution to general operating efficiency.

The system includes radiotelephones in the offices of *Earl Hustead*, planing mill foreman, and *Ronald Lundblad*, yard foreman, and in the two lift trucks and two carriers operating in the yard. Lumber piles in the Dover yard extend as far as one-quarter mile from the offices. The frequent trips lumber-carrying vehicles formerly made to the offices for orders have been eliminated, along with a considerable amount of leg work for foremen.

Instruments in use are Industrial Mobile Phones manufactured by Kaar Engineering Laboratories, Palo Alto, Calif., and were installed by Northwest Electronics, Inc., Spokane.

The installation is licensed by the

FCC and operates under its rules. Because of the low power and low range, all such systems are on the same frequency.



ON THE "MIKE"—Earl Hustead, planing mill foreman, issues a quick order to the lumberyard from his office by using a low-range, short-wave radiotelephone. This method has saved an estimated 40% in movement.

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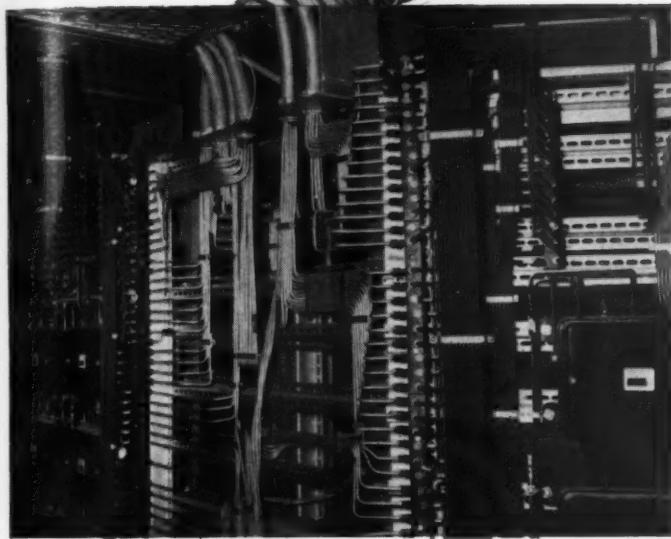
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

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Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

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UNDER THE CONTROL ROOM at the H. A. Wagner Station Unit #1 of the Baltimore Gas & Electric Company, showing Revere COPPER Tube at the right and left. Revere ALUMINUM tubes in CRESCENT ARMORED MULTITUBE are used for the long runs to this point because of the lower cost of aluminum tubing. 21 runs of ARMORED MULTITUBE comprising 140 aluminum tubes enter this panel at top and bottom center. Note sharp bends that can be made with both Revere COPPER and ALUMINUM Tubing. MULTITUBE made by CRESCENT INSULATED WIRE & CABLE COMPANY, Trenton 5, New Jersey.



CRESCENT relies on REVERE

for dependable performance of its instrumentation and control tubing
REPORTS, "NOT ONE FAILURE."

The dependable performance of Revere Copper Tube in Crescent Armored Multitube*, ever since its inception, has led the CRESCENT INSULATED WIRE & CABLE COMPANY to fill its aluminum tube needs with Revere also.

In fact, Crescent, since it first started using Revere Copper Tube in 1953, reports not a single failure. And that's mighty important in instrumentation and control tubing service where utilities, chemical processing, petroleum, paper and similar industries can't afford the luxury of process failures.

Crescent Multitube, using either Revere Copper or Aluminum Tube, or both in combination, offers a completely protected installation for permanence, lower original installation cost, lower maintenance and a saving of time, space and money.

Crescent Armored Multitube consists of a group of Revere Copper or Aluminum Tubes, twisted together in cable form, protected by a flexible interlocked galvanized steel armor. Constructions are available employing plastic sheaths in combination with the armor for corrosive

locations. Section of cabled tube pictured shows how Copper or Aluminum Tubes are encased inside the Armored Multitube. As many as 37 tubes of $1/4$ " OD can be cabled in lengths up to 1,000 ft.

For details on Multitube write Crescent and for uniform quality copper and aluminum tube, speedily delivered, see the nearest Revere Sales Office.

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... for more details, circle No. 35 on Reader Service Postcard

FIRE protection—to keep your plant safe

Gambling with fire is like playing Russian roulette. Here are some ideas on how you can keep fire from destroying your plant.

YOU CAN NOT AFFORD to gamble with fire. The cards are stacked against your survival as a business entity if you lose. Forty-three out of every hundred industries who suffer severe fire damage, never re-open. Another 28 are forced to shut down permanently within three years after a fire. Only 28 out of every hundred survive.

This is like playing Russian roulette with your company's future. Your chance of winning is less than three in ten. A company unfortunate enough to sustain a severe fire, even if its

reserves and credit are great enough to enable it to re-build, would have tough sledding. Construction costs are rising far out of proportion to other consumer prices.

If dwelling construction is any criteria of general construction costs, it is notable that the National Association of Home Builders reported that construction costs have risen 18% in two years; 185% in ten years.

Today's million-dollar plant may well cost two million to replace within a decade. In a word, there is only one sensible solution to this problem: Pre-

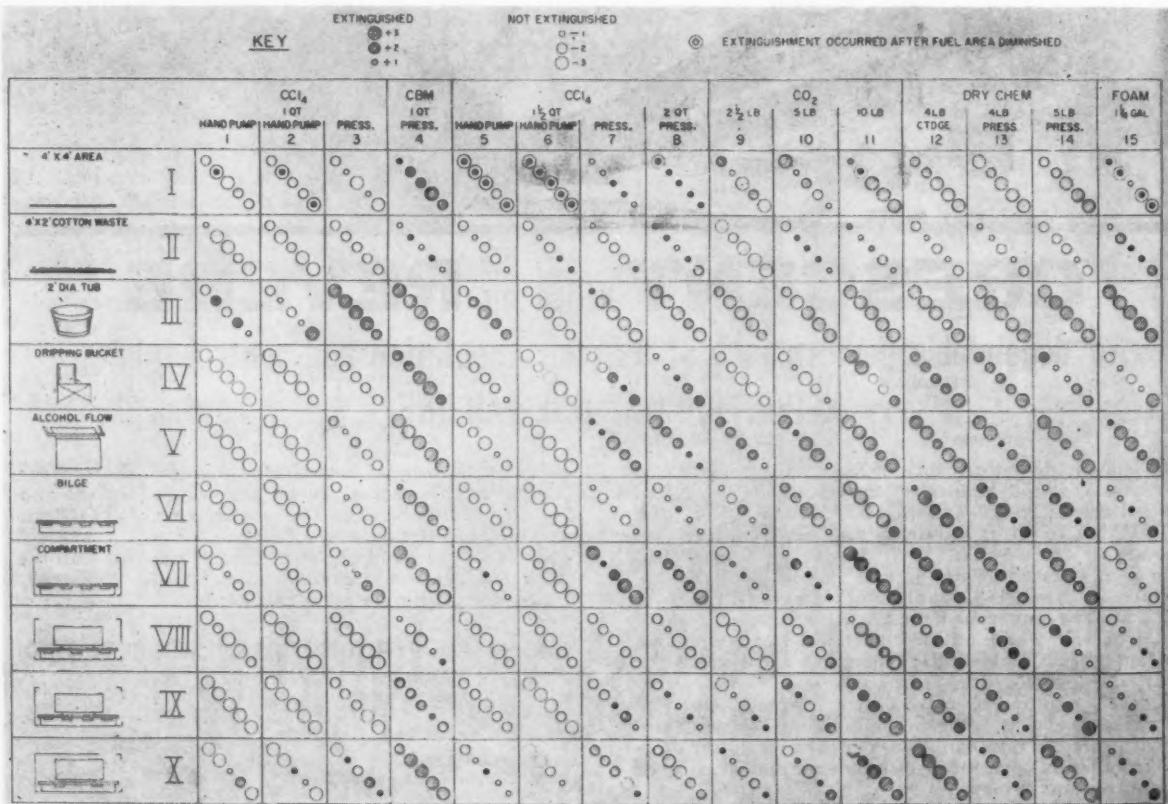
serve what you have.

Industry hardest hit

Industrial fire damage was up 50% in 1956 over 1955. Large loss fires (over \$250,000) plagued industry as never before, accounting for almost one dollar in every four lost in fires of all kinds. Fires of all kinds cost property owners \$1,250,000 in direct property loss.

It cost the national economy ten times that amount in lost taxes, profits, wages and salaries, interest,

How various fire extinguishers work on different types of fire



FIVE TRIALS WERE MADE WITH 15 EXTINGUISHERS on each of 10 fire types at the National Bureau of Standards. This schematic chart illustrates the performance obtained with the extinguishers. The key to interpreta-

tion of the diagram is based on six levels of success: the highest positive number (+3) indicates easiest extinguishment and the lowest negative number (-3) represents minimum efficiency. Technical report 2133.

lost customers, delayed or canceled orders and destroyed documents. And, nearly 11,000 lives were lost.

Why has industry been the target of these enormous losses? Primarily because fires go undetected until it is too late. 83% of industrial fire damage occurs when plants are off shift or unoccupied. This condition is even more lamentable when we realize that it did not have to happen.

Had these plants been protected with automatic sprinklers the story would have been different. Independent research covering 30 years has shown that in 96.2% of cases involving sprinklered buildings, fires were extinguished immediately or brought under control.

Damage has been so negligible in sprinklered buildings as to occasion 50 to 90% reduction in fire insurance premiums. Insurance companies deal in fact; they are realists. These rates are based on actuarial tables which represent historic dollar losses.

What does this mean to you? It means that a sprinkler system may actually cost you nothing, and may even act as a source of revenue after the insurance premium savings have amortized themselves and paid for the installation of the system. In effect, when you have a sprinkler system installed you buy an automatic, mechanical fire department.

It remains on duty, in your building (not 20 blocks away) twenty-four hours a day. Its response to fire is immediate and automatic, hence fires are caught at their inception, limiting damage to a small area. To illustrate: 43.2% of fires in sprinklered buildings are extinguished by a single sprinkler head; 70.7% by three or less heads.

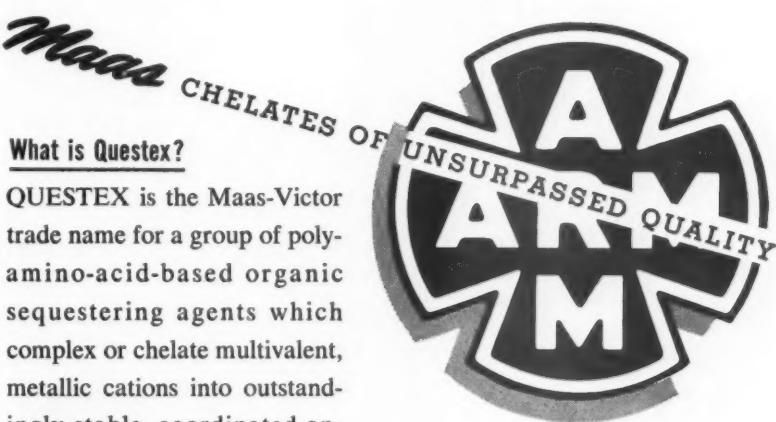
Fire's growth potential in a sprinklered building is small. There is no other way that you can have a fire department in your building around the clock, ready to place water at the seat of a fire within seconds and pay you for the service it performs.

You can have your cake and eat it too.

WANT MORE IDEAS ON FIRE PROTECTION? They're yours for the asking by reading and selecting your choice of the "know-how" manuals listed on page 65. Manuals were carefully selected to bring you the best up-to-date fire protection equipment for all types of plants.

QUESTEX

ETHYLENE DIAMINE TETRA-ACETIC ACID AND DERIVATIVES



What is Questex?

QUESTEX is the Maas-Victor trade name for a group of poly-amino-acid-based organic sequestering agents which complex or chelate multivalent, metallic cations into outstandingly-stable, coordinated anionic complexes.

Suggestions for Evaluation:

As a source of agricultural trace metals—stabilizer for cellulose and synthetic fibers—to inhibit trace metal degradation and discoloration—in metal cleaning and electro-polishing—color and other photographic processing—for decontamination of nuclear materials—radiator and steam cleaning ingredient—stabilization of hydrazine—heat stable water and brine treatments—to boost detergent activity.



Write for other suggested uses and more detailed information.

Maas



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... for more details, circle No. 36 on Reader Service Postcard

selected production and maintenance ideas for Western plant operating executives



New Weyerhaeuser truck is big enough to pick up load 8½ ft. wide, 16 ft. long, and 14 ft. high.

Giant fork lift unloads railroad car in 15 min.; 20 tons at a time

A LUMBER COMPANY is using a new fork lift truck that looks like a giant hermit crab . . . and can hoist as high as a two-story house all the lumber an average U. S. citizen uses in thirty-two years.

In use at Weyerhaeuser Timber Company's Raymond, Wash., sawmill, the huge "crab" slides its eight-foot arms under 20-ton stacks of lumber. It unloads a railroad car in four trips in less than 15 min.

Like a real crab the lift truck moves forward or backward with equal ease. The truck travels at maximum speed of 16 mph. and can lift 8,000 board-feet load of lumber 26 feet per minute. A 128-hp. engine

powers the 26-ton truck.

Weyerhaeuser says the giant lift truck was acquired to make a big job safer and more efficient, resulting in a lower cost product. Up until now, an additional transferring operation was necessary in handling the lumber. The new lift truck does both jobs in half the time.

The Clark "Clarklift" CY-400 was designed primarily for the dry kiln operation. It is used mainly in connection with the air drying of cedar. Up to now the mill has been putting cedar in unit packages and sending it to the yard with carriers, then piling it with lift trucks.

The new lift truck is large enough

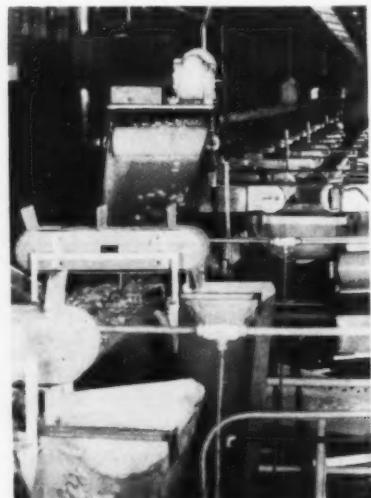
to pick up a half-a-kiln unit of cedar, which is 8½ ft. wide, 16 ft. long and 14 ft. high. With the new lift truck, cedar will be put on the regular stacker, taken to the yard and stored for drying.

New conveyor belts thrive on food fats and acids

BELT FAILURE and belt maintenance problems were eliminated when the Frito Company-Western Division switched from ordinary rubber conveyor belts to belts made from Koroseal.

Rubber belts previously used averaged only three months' service before oil saturation caused failure. The Koroseal belts remain in excellent condition and should last indefinitely.

In this Los Angeles plant, freshly cooked Fritos—a tasty corn chip delicacy—ride Koroseal conveyor belts



When the chips are down, Koroseal belts reduce maintenance costs by 50%.

In Nero's time this ancient

Knife File*

was a boon to
workmen....

...modern machinists
cut both metal
and costs
with this

... *THIS KNIFE FILE
was recovered from
the site of the Great
Roman Wall in Germany
where it had been
buried for 19 centuries.
Used to file saw teeth,
it incorporated a notch in
which the saw teeth were set
by twisting as in modern
saw-wrest files.

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**THE NEW NICHOLSON "MAGICUT" FILE's unique pattern of chip
breakers and maximum cutting surface files everything from brass to stainless
steel — removes stock and smooths at the same time.

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**Provides easy accessibility
for assembly and inspection**

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- Large Heat Treated Alloy Steel Studs capable of carrying ten times rated load without stretching.
- Large Clean Out Hole for removing sludge from bottom of box.

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KNOW-HOW NOTEBOOK ... Part 1, continued

from the oven area to packaging stations. These belts, 120 ft. long, become bathed in warm vegetable oil throughout their entire lengths, a condition which proved too severe for other belts. Koroseal flexible material, however, resists the attack of vegetable oil as well as animal fats and most acids in food handling applications.

Belt maintenance savings are esti-

mated at 50%. Mechanical fasteners remain securely locked in Koroseal belts, do not pull out as in the case of oil-saturated belts. Belt cleaning is no longer a problem since Koroseal's smooth surface cleans easily with a damp cloth and detergent. Food particles cannot grind into the polished surface and the flexible material will not support bacteria.



Mattison ripsaw is used by Hollydale, Calif., furniture manufacturer to eliminate waste in lumber utilization.

Straightedging ripsaw saves in use of random width lumber

A COMPETENT STRAIGHTEDGING RIPSAW is just the tool you'll need if your ripsaw operator is match-ripping relatively short material, and he must be sure that all pieces in each matched-up plate be of uniform width.

This is what ripsaw operators at Harbor Furniture Mfg. Co., Hollydale, Calif., report. They find that under the above conditions, it is more difficult to work lumber economically than where random widths of material may be used in the glue-up.

Nevertheless, they report, it is possible to work with very fair economy, even though the lumber is of random widths initially, by building up re-

quired overall widths from different individual widths.

Let's suppose, as an instance in point, that 24-in. finished tops are being match-ripped from hardwood. It is required that all pieces in each top be of fairly uniform width, and it is stipulated that no material less than 3 in. wide shall be used.

With these specifications in mind, and with a lot of random-width lumber at hand, the sawyer is still free to rip pieces $8\frac{1}{4}$, $6\frac{1}{4}$, $5\frac{1}{16}$, $4\frac{1}{8}$, $3\frac{9}{16}$, or $3\frac{1}{8}$ wide.

In citing the above figures, cases are in mind in which the material will be jointed before gluing together. That is, all the above values are natu-

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THE **Lufkin LINE**
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AT

LONG BEACH

The Time: 6:30
P.M. Thursday, Sep-
tember 19

The Place: The
Long Beach Petro-
leum Club

The Occasion:
The Long Beach
Desk and Derrick
Regular Meeting.

To have been a
guest of the Long
Beach Desk and
Derrick Club is to
enjoy an evening of
the utmost in graci-
ous hospitality. This fine group numbers
some 250 members. Virginia Culver is
President, and directs the proceedings with
precision and promptness—but with a
friendly informality which certainly is true
to oil industry tradition, and as the oil-
man would say, "Strictly A.P.I."



V. J. Fawcett

Virginia Culver is ably assisted by her
very efficient Board: Bertiemae Hook, First
Vice-President; Leta Donkle, Second Vice-
President; Mary Clark, Recording Secre-
tary; Lucille Swigert, Corresponding Secre-
tary; and Ruth Jenkins, Treasurer, whose
combined efforts make everything run like
clockwork.

Thanks to Irene Arnold for the many
personal introductions. Irene substituted for
Dorothy Woodruff, Program Chairman,
while Mrs. Arnold is regularly Field Trip
Chairman.

My part in the program was indeed a
very pleasant one, presenting a little
travelogue on "Turkey—The Oilman's
Newest Frontier." Perhaps an apology is in
order at this point, since at the closing,
somehow or other, two or three colored
slides appeared showing Lufkin High
Speed Increases at the Turkish Petroleum
Refinery at Batman, Southeastern Turkey
—but, after all, what's a refinery without
a Lufkin.

Virginia Culver

Lufkin FOUNDRY
& MACHINE COMPANY

... for more details, circle No. 39

KNOW-HOW NOTEBOOK... Part 1, continued

ral divisors of the required 24-in. width, with necessary jointing allowances provided.

This will not allow a sawyer to rip his lumber *quite* as close as if he were free to work it into any random width he chose.

However, ability to make selection among all six of these widths will make it possible for him to proceed with only moderate waste.

In any case where lumber is being match-ripped, whatever the specifications, a competent straightedging ripsaw is very helpful in doing good work in a minimum of time.

The straightedging ripsaw holds the material firmly between pressure rollers above and a feed chain running in the table below. Therefore, all material is ripped on a perfectly straight line, allowing one to conveniently do any preliminary edging or defect ripping before dimensional ripping is performed on the component parts.

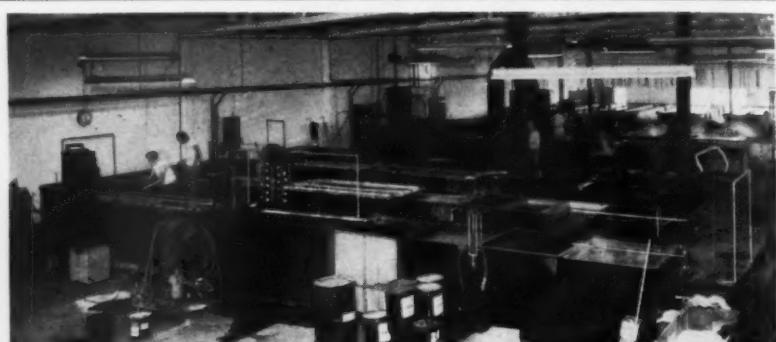
tomized installation of the Colt System of Natural Ventilation. The system permits both building and human body heat loss to the atmosphere. Normally, radiant heat, such as exuded from the type of electric furnaces used in the Cannon plant, cannot pass through the building fabric because it is of low frequency.

The Colt CO/2046 clear-opening

ventilators are constructed of anti-corrosive hardened aluminum. They weigh just 23 pounds.

Designed with oversized openings to give maximum heat extraction, adjustable top and side-drain channels of louvres are a safeguard against rain. When closed, ventilators become rainproof.

The system was installed during regular working hours, without work stoppage or structural plant changes. No reinforcements, supporting platforms or other costly installation accessories were needed.



Water at 290 deg. F. is circulated through a heat exchanger coil in the many individual vats.

Hot plant becomes comfortable with natural ventilation

HEAT BUILD-UP caused by sun and electric furnaces was a vexing problem plaguing the Can-Seal Division of Cannon Electric Co., Los Angeles. Interior temperature rose to 105 deg. F. with only one furnace in operation.

But the temperature dropped to a pleasant 76 deg. F. with two furnaces in operation when the company installed eight clear-opening adjustable louvre ventilators and a wall-inflow unit.

The ventilating system was a cus-

High temperature water system saves 60% over direct firing

THE USE OF high temperature water solved a cost and safety problem for the Quality Metal Finishing Co. in Lynwood, Calif.

The firm—which specializes in chromate corrosion-resistant conversion coatings, paint base prime coatings, electroplating and anodizing—decided that heating vats by the old method of direct firing over an open gas flame was costly and hazardous.

So R. A. Richards, president of Quality Metal Finishing, invited rep-

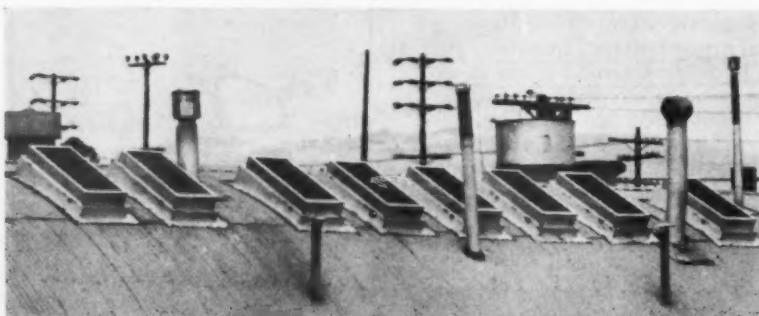
resentatives of the Sid E. Parker Boiler Manufacturing Co. to study the heating vat problem and make recommendations for conversion to steam.

Instead, Parker engineers recommended that high temperature water would be more efficient and more economical. A Parker Model T-4000 hot water boiler with an output capacity of 2,800,000 Btu. was installed.

Water heated to a temperature of 290 deg. F. is circulated through a heat exchanger coil located in each tank. Individual tank temperatures are maintained thermostatically so that a variety of operations requiring different temperatures can be processed at the same time.

"After eight months of operation it is possible to arrive at some startling comparative figures of the old method versus the new," states Mr. Richards.

"We have reduced fuel costs more than 60%. In addition, the boiler operation is almost completely automatic. The night watchman pushes a button at 5 a.m. and by 7:30 the plant is in operation. We even found that we



Eight adjustable louvre ventilators and a wall-inflow unit dropped interior temperatures from 105 to 76 deg. F. by permitting both building and human body heat loss to the atmosphere.

could use our own people when making the original boiler installation because it came as a completely packaged unit. Down-time for inspection and maintenance has been reduced to an absolute minimum."



Norelco unit is adjusted before running a chart on X-ray spectograph.

X-ray analysis inspects metals five times faster

X-RAY ANALYSIS has displaced chemical methods at the Bell, Calif., plant of Thompson Products, Inc., because the company found it could do many jobs in 1/5 the time with accuracies of $1/2$ of 1% on routine work and 2/10 of 1% under favorable conditions. On certain quantitative tasks where 100 analyses formerly took 8 hours, the X-ray spectograph now gives the answers in 3 hours.

The Thompson foundry is capable of pouring 16 heats a day. Typical alloys include heat resistant metals with a high percentage of chrome and nickel, stellite with a high percentage of cobalt, chrome and tungsten, and some low alloy steels such as SAE 4140 and 4340.

Obviously, an analysis is necessary on each heat and it was difficult to hold a heat while a 6-8 hour chemical analysis was made. Now with X-ray analysis, it takes a half-hour to get the same information. On many alloys, the analysis time by the X-ray method is about 1-3 min. per element.

According to Danford J. Dodds, chief metallurgist at the West Coast plant of Thompson Products, Inc., the X-ray analysis instruments also help to control the quality of purchased alloys. Since much more of this work can be done accurately in a given period of time, there is less chance for a below-standard shipment to be accepted.

Work orders stay clean and neat all the way

TO PROTECT WORK ORDERS as they are routed through the plant, Douglas Aircraft encloses them in transparent film envelopes. These protective envelopes are clear so that orders can be read easily without removing papers.

A simple, quick pressure closure



Transparent film envelopes do the trick, warding off moisture and finger smudges.

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Model 1500 Belt Conveyor Idlers with sealed ball bearings

Where your operating requirements call for a dependable, long-life idler for moderate load service...and where low initial cost is important...Rex Model 1500 Idlers are your economical choice.

Sealed ball bearings eliminate need for greasing...install them and forget them! These idlers are fixture-assembled to assure accurate alignment of all parts for long life of both idler and belt. Permanent one-piece steel rolls are concentric, with full rounded edges, and have minimum roll gap to provide positive protection against belt injury.

Model 1500 idlers are made in our Los Angeles plant...designed and built for Western needs. For the complete story, send for your copy of Bulletin No. 55-77. CHAIN Belt Company, 7601 Telegraph Rd., Los Angeles 22, Calif.; 2940 Seventh St., Berkeley 10, Calif.; 2310 N.W. 24th Ave., Portland 10, Ore.; 2425 Airport Way, Seattle 4, Wash.

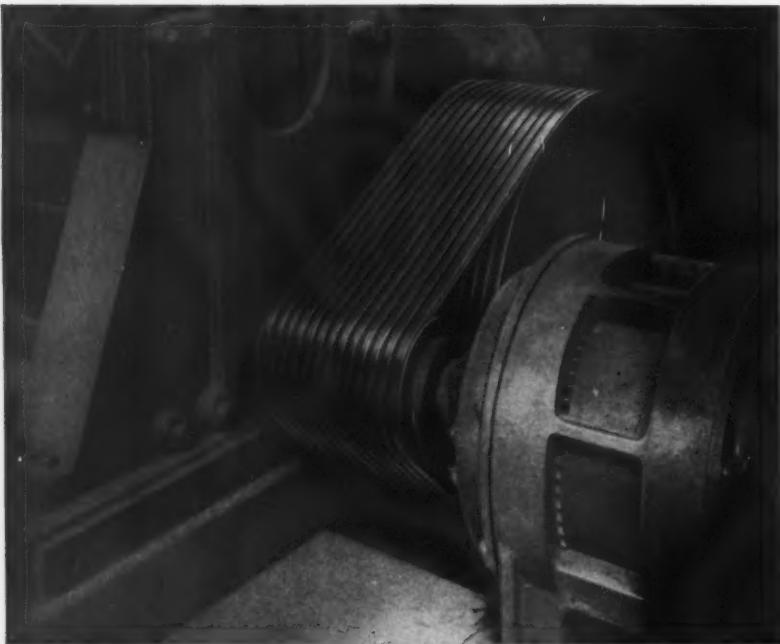
For Your Power Drive and Conveying Needs



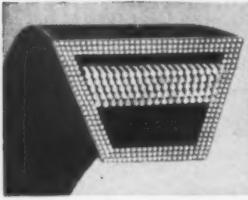
CHAIN BELT

...for more details, circle No. 40 on Reader Service Postcard

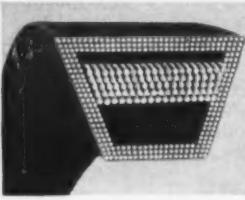
Are you using the *right* QUAKER V-BELT?



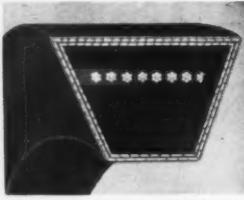
Quaker Rubber Division offers a full line of tough, long-lasting V-Belts. Each is designed to give long, efficient service. And each is designed to do a specific job. For example . . .



For drives requiring additional horsepower, the Quaker Super V-Belt—40% stronger than standard V-Belts—is available in a complete range of sizes, A through EP cross-section.



For normal operating conditions without special speeds, loads or center distances, Quaker has the Multiple V-Belt at reasonable cost. Available from 26" to 660" in all cross-sections from A to E.

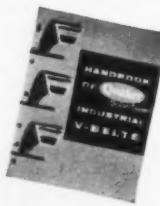


For drives under 1 HP, the Quaker Fractional Horsepower V-Belt gives quiet operation without vibration, stretch or twisting. Ideal for light duty applications. Available in cross-sections from 15" to 100".

HOW TO SELECT V-BELT DRIVES

Send for free, illustrated, 72-page handbook packed with facts on selecting V-Belt Drives . . . service factors . . . recommended V-Belt cross-sections for various horsepower and speeds . . . maintenance hints. Write:

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Quaker Rubber Works, Philadelphia 24, Pa., or
Pioneer Works, Pittsburg, California



H. K. PORTER COMPANY, INC.
QUAKER RUBBER DIVISION

... for more details, circle No. 41 on Reader Service Postcard

KNOW-HOW

NOTEBOOK

Part 1: continued

permits papers to be taken out and replaced if the work order needs notation. With the pressure closure sealed, the work order is protected against dirt, chemicals, moisture and finger smudges.

An added feature of the work order envelope is the slot at top which can be used to hold identification of the originating department or supervisor.

These transparent film envelopes made of Bakelite polyethylene are manufactured by Polyfab Co., 3511 Eagle Rock Blvd., Los Angeles, using Durethane film supplied by Durethane Koppers Co., Inc. Pressure closures are supplied by Flexigrip, Inc. Standard sizes measure 6 1/2 x 8 3/4 in.; 7 1/2 x 10 1/2 in.; 12 3/4 x 10 in.; 13 1/4 x 10 3/4 in.

What good records can accomplish in maintenance

AUTHOR

SAMUEL SCHULMAN
Remington Rand Corp.
Los Angeles



THE REASON for keeping maintenance records is simple. It is to directly or indirectly reduce costs and produce a profit for business. Anyone who subscribes to a preventive maintenance program will subscribe to the record involved; because without the records, there is no way to determine the value or effectiveness of the program.

What types of records are involved?

1. *Equipment Records.* If you are going to maintain equipment you must know what it is and where it is. Normally, a card is established for each piece of equipment. This card lists serial number and other information. It is also wise to give a property number to each piece of equipment.

ment and use that number in filing the cards. Quite often the property number incorporates a code of the location of the equipment.

Valuable tools for maintenance

2. *Cost Record and Repair Record.* As the name implies, the purpose of this record is to keep track of costs and repairs. Properly used it is a valuable tool. It is the basis for analysis of equipment. From this record you can determine whether a specific piece of equipment is costing too much to maintain. This record and the Equipment Record data card can be compared to a patient's history card that a doctor keeps. It can be used to diagnose trouble and to prescribe a cure. Cost records should not get too detailed. Simple routine inspections or lubrications in most preventive maintenance systems are not charged directly to the individual piece of equipment. On the other hand, there should not be a tendency to blanket in small repairs that should be charged specifically.

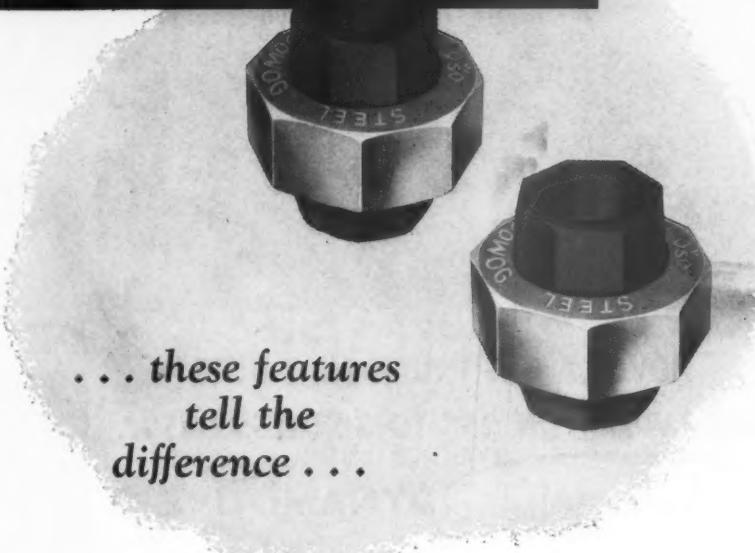
3. *Check List.* This is nothing more than the instruction sheet to personnel in their routine inspection of equipment, but it should not be used carelessly. Men using check lists will be most impressed with them if supervisors and foremen discuss their importance. Check lists, like the equipment record data cards, will also vary in the amount of detail, which will depend on the importance and complexity of machinery involved.

Machines need scheduled care

4. *Inspection Schedule.* Equipment manufacturers usually provide information required to set schedules for maintenance, inspection, and lubrication. These, of course, will be tempered by experience—but scheduling should be adhered to. If there is no schedule, machines can suffer from a lack—or excess—of lubrication. Most of us take our cars, worth a few thousand dollars, in for regular scheduled lubrication. So it follows that machines, which often cost tens of thousands of dollars—and whose downtime can cost many thousands more—should have regular schedules.

Many people continue to take the optimistic view that they have gotten along without maintenance records so far and they can continue to do so. This optimism reminds me of the story of the optimist who fell off the Empire State Building. As he passed the 80th floor he was heard to say, "Well, everything is okay so far."

W-S Forged Steel Unions



Not all forged steel fittings are alike. Careful design and precision manufacture give W-S Forged Steel Unions these important features that tell the difference:

- 1 Designed to AAR dimensional specifications.
- 2 Steel-to-steel seats, with spherical-to-angle mating surfaces. Angle is rolled to extra hardness to resist galling.
- 3 Cadmium plated nuts for resistance to corrosion and to galling and seizing.
- 4 End pieces protected against rust by new W-S blue synthetic coating.
- 5 Octagonal end pieces for better gripping.

W-S Unions are machined from forged steel in accordance with ASTM material specifications A-105, Grade 2. They are available with screw-end and socket-welding end pieces in 3000 lb. class, sizes $\frac{1}{8}$ " to 3".

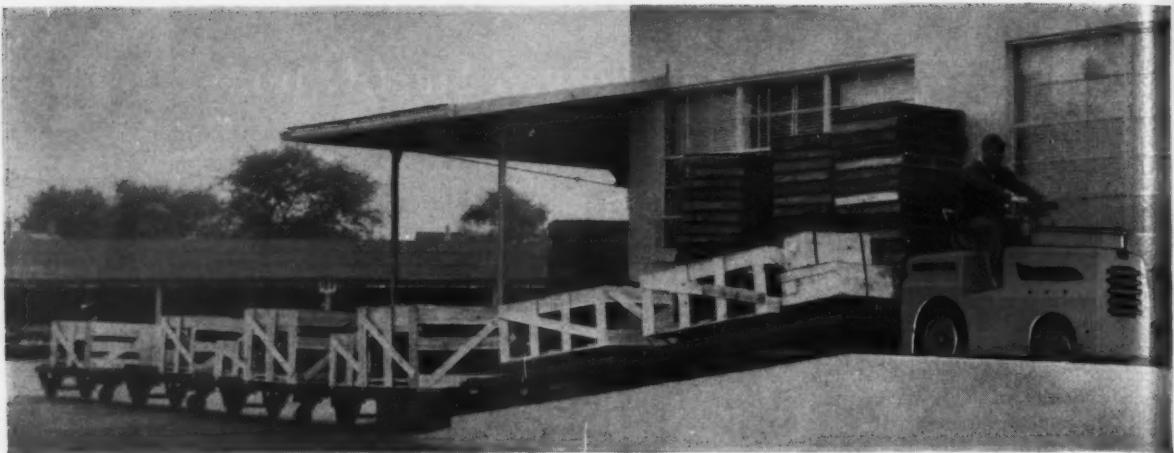
For complete information send for Bulletin U-1. Write to W-S Fittings Division, H. K. Porter Company, Inc., P. O. Box 95, Roselle, N. J.



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W-S FITTINGS DIVISION

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**NOW...A GAS TRUCK THAT DOES
MORE WORK ON 25% TO 30% LESS GAS...**

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DYNAMOTIVE

The secret of Automatic DYNAMOTIVE'S (GLF Series) proved superior performance lies in its complete simplicity. Electrical power from an engine-driven variable voltage generator drives motor direct coupled to drive axle. This proved power train *without gears* eliminates slippage and power loss due to heat buildup. Additional gas mileage is achieved by the inherent overdrive and torque multiplying features of this electric power train.

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Positive Inching Control...precise spotting gives faster, safer handling of loads.

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Safety...Dynamotives are listed by Underwriters' Laboratories Inc. and Factory Mutual Laboratories.

G.L.F. Capacities: 4,000 to 10,000 lbs. with solid tires...4,000 and 6,000 lbs. with pneumatics. Tractors available in 2,500 and 3,500 lbs. draw bar pull.

But there's much more to be told. Mail the coupon today for complete specifications and FREE "Cost-Cutter" Booklet that shows how to chart and analyze your own materials handling needs.



Part of a **DYNAMOTIVE** "fleet" used for warehousing, loading, etc. Calumet Industrial District Co.



This **DYNAMOTIVE** unit paid for itself in one year says Lock Joint Pipe Company official.

Factory service available in over 100 cities.

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...for more details, circle No. 43 on Reader Service Postcard

WESTERN INDUSTRY — October 1957

Automatic Transportation Company
Dept. T-7, 121 West 87th Street, Chicago 20, Illinois, U. S. A.

Please mail me complete specifications for the Automatic DYNAMOTIVE and include Free copy of your booklet, "Materials Handling COST CUTTER."

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BEST SAFETY MANUALS

15 on fire protection (p. 65)
30 on safety products (p. 66)

OCTOBER is fire protection month—and that's why WESTERN INDUSTRY's unique know-how literature library this month presents the best available manuals to put all the latest facts on fire protection systems at your fingertips.

As a bonus, and as an aid to safer operations in your plant, we've collected the best available manuals on many different types of safety products as well.

By special permission of the manufacturers who published them, key

production and plant operating men in Western plants are welcome to their selection free.

Circle appropriate key numbers on this month's WI Reader Service Postcard (p. 83), and we'll see that you obtain your choice promptly.

15 BEST MANUALS ON FIRE PROTECTION

ABC's of fire protection in 36 pages

Describes and illustrates three types of fire protection systems—fixed-temperature, rate-of-temperature-rise, and alarm and control—with different extinguishing methods used with them. Explains insurance savings, other economic benefits provided by fire protection systems and gives details on this firm's complete range of components and systems, including sprinkler, water fog, air and chemical foam, etc. *"Automatic" Sprinkler Corp. of America*

... for your copy, circle No. 251

20 pages of data on spray sprinklers

What you may lose when fire strikes, and recommended prevention for such losses is the subject of this 20-page discussion of spray sprinkler protection systems. Advantages, features, types and other pertinent facts are covered, as well as details of the firm's inspection and supervisory service. *Grinnell Co.*

... for your copy, circle No. 252

Facts, figures on centrifugal fire pumps

Construction and design details of a line of motor-driven and engine-driven fire pumps are presented in this booklet's eight pages. Photographs and labeled sketches are included, plus dimensions and charts that show capacities, pressures, speed, etc. *Farbanks-Morse & Co.*

... for your copy, circle No. 253

All kinds of spray nozzles for fire control

A variety of spray nozzles—center jet, impactor, free-flow, tangential, fan, internal mix, etc.—are covered in this 30-page catalog. Each of the many types is described in regard to design, materials, spray characteristics and applications. Detailed sketches, pictures and specification charts supplement the text. *Spray Engineering Co.*

... for your copy, circle No. 254

Fold-out leaflet for fire extinguishers

A dozen or so fire extinguishers, typed as to agent and method of operation, are described and pictured in this useful leaflet with graduated pages that fold out so you can read and compare all at once. Specifications, features, accessories and other data are included. *Buffalo Fire Appliances Corp.*

... for your copy, circle No. 255

How to choose a portable extinguisher

An easy-to-use selection chart for picking the right fire extinguisher is a feature of this 12-page manual that gives facts on five types—carbon dioxide, dry chemical, foam, water and vaporizing liquid. Data on operation, range of stream, pressure source, rated capacity and recharging periods is included. You'll also find information on hose reel equipment, accessories, and fire detection and protection systems. *Walter Kidde & Co., Inc.*

... for your copy, circle No. 256

Features and functions of Flexalarm system

Typical specifications and basic diagrams for more than 50 Flexalarm fire alarm systems are digested in an overall picture of this firm's products. Features of the building-block concept on which the systems are based, and a general description of the 26 component panels used to make up separate systems with their associated parts appear in the introductory portion of the manual. Sections in the second part deal with symbols, pictorial diagrams, control cabinets, limited energy systems, terminology and detailed data on 11 basic categories under which the total 52 systems fall. *The Gamewell Co.*

... for your copy, circle No. 257

Fire extinguishing by carbon dioxide

Built-in carbon dioxide industrial systems, fire detection systems and portable fire extinguishing equipment are covered in this eight-page manual with diagrams, cutaway drawings and other illustrations. It lists types of hazards for which carbon dioxide is advisable, including flammable liquid, electrical and carbonaceous material. The firm's four types of extinguishing systems are detailed, as are pressurized operated trips and switches. A selector chart gives valuable facts on portable equipment and its operation. *Walter Kidde & Company, Inc.*

... for your copy, circle No. 258

Fundamentals of fire extinguishment

Four basic facts about fire extinguishing, three classes of fire with advised control methods for each, and characteristics of flammable liquids are concisely covered in this four-page presentation that has eye-catching diagrams for emphasis and interest. *Ansul Chemical Co.*

... for your copy, circle No. 259

Spec sheet on smoke indicator and alarm

How this smoke indication and alarm device works, what its basic parts are, and where it should be installed are outlined in this one-page presentation. Specifications, dimensions, illustrations included. *Ripley Co.*

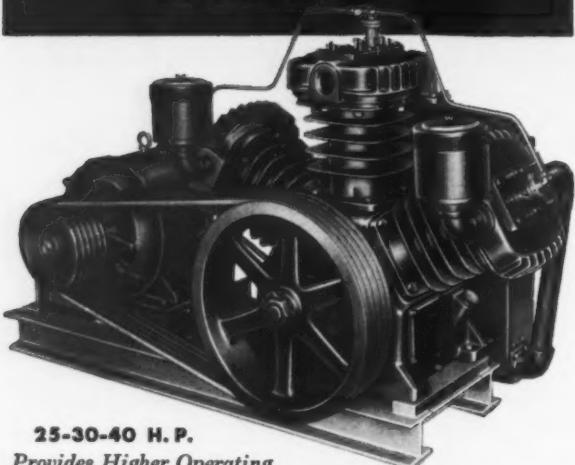
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CURTIS MODEL C-100

Two-Stage, Air-Cooled Air Compressor

Delivers **MORE** Air...

MINUTE
HORSEPOWER
PER
KILOWATT HOUR OF
ELECTRICAL ENERGY
CONSUMED



25-30-40 H.P.

Provides Higher Operating
Efficiency Costs Less to Install

The Curtis Two-Stage Compressor assures a saving in your power costs. It's air cooled, thereby eliminating expensive water bills—quick and easy installation with no complicated plumbing problems.

The new C-100 embodies all the well-known Curtis engineering features such as centro-ring oiling and Timken Main Bearings.

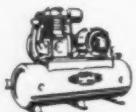
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KNOW-HOW NOTEBOOK Part 2

BEST FIRE PROTECTION MANUALS continued

Check your fire hazards with this index

Nearly 700 fire hazardous materials—from Acetal to Zirconium—are listed in this 44-page index, along with the correct extinguisher or agent to be used for control of each. Convenient both as to size (about 4 x 8 in.) and layout, it's designed to give you the facts at a glance. The booklet also has a one-page fire protection check chart for positive fire protection. *Buffalo Fire Appliance Corp.*

... for your copy, circle No. 261

Major methods of special hazard fire control

Origin, application, economics and methods of fire protection for special hazard conditions are discussed in this 28-page, heavily illustrated manual. Covers four methods of fire detection and several methods of prevention, control and extinguishment with systems applicable to each. Two-page chart gives answers to practically all special hazard situations. *"Automatic" Sprinkler Corp. of America.*

... for your copy, circle No. 262

58-page catalog of fire protection products

In this collection of fact folders and engineering data sheets, you'll find detailed description of this firm's many types of fire protection systems and products. One brochure presents several picture case histories of fog-foam, water foam, and water-fog control systems; another describes and illustrates 15 types of fire protection equipment, and others deal with portable fire control products, spot-protection systems, etc. *Rockwood Sprinkler Co.*

... for your copy, circle No. 263

30 BEST MANUALS ON SAFETY PRODUCTS

Data on fire-resistant hydraulic fluids

If the spread of fires through use of petroleum hydraulic fluids is of major concern to you, you'll get some valuable aid from the data in this four-page pamphlet that tells all about Houghto-Safe 1020, a fortified phosphate ester base material for use where bearing pressures are high and temperatures often exceed 150 deg. F. Physical properties, results of fire-resistance, oiliness and other tests, are discussed and there are instructions for fluid change-over. *E. F. Houghton & Co.*

... for your copy, circle No. 264

Tips on head-to-toe protective clothing

Name any part of the body that needs apparel protection and you'll find the right garment for it in this 20-page Wheeler catalog of clothing for heat and rough handling hazards. It lists 33 types of aprons, 37 of gloves (asbestos and leather), 11 of helmets, as well as head, hand and leg protectors; mittens; coats; firemen's outfits; overalls, etc. One section covers women's clothing and another, miscellaneous items—blankets, carrying cases, curtains, etc. Distributed by *E. D. Bullard Co.*

... for your copy, circle No. 265

Helmets, headgear and hand shields

If you're in the market for face protection products, you'll find a wide choice detailed in this bulletin and price sheet. Helmets have compression molded, fiberglass reinforced polyester resin shells, come with various types of glass holders, headgear and other parts, as do the plastic or steel hand shields. *The Fibre-Metal Products Co.*

... for your copy, circle No. 266

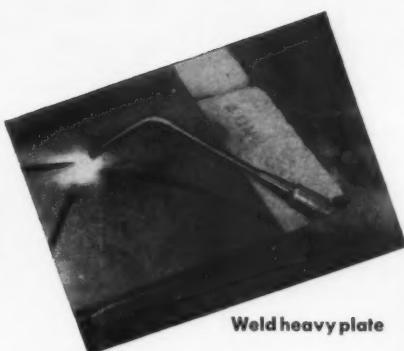
What protection equipment to use and where

... is the opening section of a comprehensive 64-page catalog that describes goggles, hoods, respirators, masks, aprons, sleeves, shields, helmets, and guards. The what-to-use section is a chart listing specific hazards, recommended equipment and where it appears in the book. Sections devoted to various equipment categories give information on applications, uses, fitting and care. Charts include those for shades of anti-glare lenses, for proper protection against fumes and gases, for ordering aprons and sleeves. A separate price list covers all items. *Chicago Eye Shield Co.*

... for your copy, circle No. 267



Weld sheet metal



Weld heavy plate



Handle heavy heating

NOW . . . one blowpipe handles all your welding, cutting and heating needs



New OXWELD W-47



Cut metal

Here's another LINDE "first" . . . the all new OXWELD W-47 Welding Blowpipe. Backed by more than half a century of experience and engineering skill, the new W-47 Blowpipe offers you a host of efficiency-increasing features never before available in a single welding blowpipe.

Widest Work Range—Weld sheet metal as thin as 28 gage or the heaviest plate. Convenient cutting attachment quickly converts the W-47 to flame-cutting work on metal up to 8 in. thick.

Largest Flow Capacity—Handle any oxygen or acetylene flow from 2 to 300 cu. ft. per hour. With fuel gas heating heads you can handle total gas flows up to 1500 cu. ft. per hour!

Improved Mixer—New cartridge-type mixer in each head provides thorough, proportionate mixing of gases and prevents flashback—at all working pressures.

Trouble-Free Construction—New features include "O" ring gas seals, self-seating valves, and spring-lock welding heads. Stainless steel mixing tubes keep the blowpipe handle cool even during 'round the clock operation!

Full Selection of Accessories—The W-47 offers the largest selection of accessories ever available for use with one blowpipe. In addition to standard welding heads and cutting attachment, a full selection of accessory equipment for flame-priming and descaling is available.

TRY THE NEW W-47 IN YOUR SHOP

Take advantage of all the new features of the OXWELD W-47 in your own shop. Call your nearby LINDE office to arrange for a demonstration or write for free booklet F-1107. Do it today!

LINDE COMPANY DIVISION OF

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CORPORATION

KNOW-HOW NOTEBOOK . . . Part 2

30 BEST SAFETY PRODUCT MANUALS . . . continued

Slide-selector for Surety gloves

You can settle your doubts about the proper gloves for industrial safety with this easy-to-use glove selector. To use it you set a slide-insert for condition or exposure, then check the window next to it for resistance properties of gloves made of Sureseal, natural rubber and synthetic rubber. The condition-exposure listing covers acids, alcohols, inorganic salts, alkalies, solvents and others. *The Surety Rubber Co.*

. . . for your copy, circle No. 268

Keep this under your hat!

Sixteen styles of winter liners and sweater caps are illustrated and described in this fact folder about full protection under safety hard hats and caps. Prices, grades and materials are given for all. *Parker Safety Equipment Co.*

. . . for your copy, circle No. 269

Ordering data for one-size safety specs

How you can cut time and costs in purchase of safety spectacles for your employees is the subject of this fact sheet about Contour-Specs that have a patented hinge bridge for universal fit. Other design details that assure protection for users are given, as well as information on styles and prices. *Wilson Products Div., Ray-O-Vac*

. . . for your copy, circle No. 270

Put your right foot forward

. . . by getting the latest information on safety shoes from this detailed, illustrated catalog. Beginning with a selection chart that shows what sole material is best for oil, caustics, water, etc., it goes on to show you features and many styles of work shoes, with several models of double duty executive oxfords, Goodyear welt and heavy duty work shoes, special types (electrical, hazardous, lineman's etc.), high cuts, women's safety shoes and rubber foot-wear. Prices are listed in an accompanying sheet. *Lehigh Safety Shoe Co.*

. . . for your copy, circle No. 271

Fashion facts for foundry workers

A set of six small pamphlets covers the complete field of safety clothing for foundry and welding workers, with descriptions and pictures of many models in each category. Included are aprons and sleeves; helmets; hand and knee pads; pants and pants guards; spats; leggings; coats; gloves and mittens; uniforms; armlets; jackets; overalls; foot, toe and shin guards, and welding curtains. *Safety Clothing & Equipment Co.*

. . . for your copy, circle No. 272

Points on practical machine tool guarding

If flying shop-flak, chips, dust or splash are impeding your production you'll want to look over this four-page manual about a line of magnetic grip-shields for guarding lathes, presses, saws, grinders, etc. It covers all details of the transparent plastic panel for either the average or the extra-rugged job, in sizes from 6 x 8 in. to 16 x 20 in. Prices are given for the units and for replacement panels. *The Dilley Manufacturing Co.*

. . . for your copy, circle No. 273

Eye safety survey and guide

With this safety survey and guide, plus the accompanying 28-page catalog, you can quickly spot the specific eyewear best adapted for your employees' safety and comfort. It lists some 60 hazardous jobs with recommended protection for each. In the catalog you'll find scores of different safety glass styles and types, welding lenses, chemical goggles and shields. There are details on other safety items such as salt tablets, hats, carbon monoxide indicators and protective aprons. *United States Safety Service Co.*

. . . for your copy, circle No. 274

All about safety devices for punch presses

Diagrams—17 of them—that give details and dimensions for different kinds of presses fill most of this 16-page manual of technical details about positive safety devices for presses. Prices and dimensions are given for five types of devices—floor attached, beam or ceiling attached, embossing press floor or ceiling attached, drop hammer and special pull out multipliers. There are also data on inspection, installation and adjustment, and a list of 15 accident causes in the press room. *The Positive Safety Mfg. Co.*

. . . for your copy, circle No. 275

98 pages of safety equipment, supplies

Just about anything you'd ever want or need in the safety equipment line can be found in this comprehensive catalog that lists and illustrates hundreds of usual and unusual items. It is indexed by head, eye, ear and respiratory protection; safety clothing; industrial safety belts; power field protective equipment; fire extinguishers; gas masks, and miscellaneous items, with scores of products in each category. Abrasive hoods, babbittting masks, cartridge type respirators, first aid kits, glass-fiber coated clothing, belts and harnesses, pole grips, barricade tape and protective creams are samples of the sort of products included. *Williams & Co., Inc.*

. . . for your copy, circle No. 276

Spec sheets for punch press guards

A series of illustrated spec sheets, plus data for installation, will give you valuable information on several types of safety guards and controls for power punch presses. Each sheet has the essential facts for choosing the one you need and pictures to show devices in use on various press types. Among the products are single and double sweep types, basket or enclosure type guards, electro-solenoid or electro-pneumatic two-hand controls, and a non-repeat device for presses and shears. *Searjeant Metal Products, Inc.*

. . . for your copy, circle No. 277

Protection against fire, acids, chemicals

This concise two-page folder lists a variety of protective apparel you can order for full protection against fire, acids and chemicals in your plant. Mainly asbestos safety clothing, it covers gloves and mittens of many types, as well as aprons and garments for all body areas. *Quaker Safety Products & Manufacturing Co.*

. . . for your copy, circle No. 278

Welders will welcome

. . . this complete catalog of clothing for their protection at work. Gloves, coats, sleeves, aprons, capes and bibs, overalls, pants and chaps are illustrated and described. There is an accompanying price list, as well as a small leaflet that covers the same general subject. *Aljay Mfg. Co., Inc.*

. . . for your copy, circle No. 279

Positive protection for welders

A line of pearl-gray, heat-resistant chrome-tanned leather garments for wear by welders is detailed in a four-page pamphlet that illustrates each item. Included are helmets, capes, mitts, chaps, sleeves, aprons, coats and spats, plus an electrode carrier. Data on five styles of asbestos and gloves and mitts are given also. *Eastern Equipment Company, Inc.*

. . . for your copy, circle No. 280

Safety items by the hundreds

You'll find everything from a half-ounce dust mask to a large barrel lifter among the several hundred safety items listed in this ready reference buyers' guide. Most of the items are illustrated, with descriptions, specifications and recommended uses given for each. Since equipment is grouped according to function, your comparison of similar products and proper selection of the ones for you is easy. *General Scientific Equipment Co.*

. . . for your copy, circle No. 281

Protection plus for vision in your plant

A complete line of safety eyewear and lenses, together with this firm's industrial vision testers, are discussed in a 42-page catalog that features a three-page ordering guide. Safety glasses of many types, corrective-protective precision glasses, absorptive lenses, goggles, eye shields, cases and eyewear fitting sets are detailed, with illustrations, specifications and recommended uses given for each item or accessory. *Bausch & Lomb Optical Co.*

. . . for your copy, circle No. 282

Test reports on Silvasbestos cloth

Reports of three tests on Silvasbestos, an asbestos cloth with aluminum-resin coating used in making long-wearing, heat-resistant safety clothing, are given in this two-page bulletin. Specific properties of the product, made by Raybestos-Manhattan, Inc., are detailed, and tests for abrasion, wear and heat discussed and illustrated. *Quaker Safety Products & Mfg. Co.*

. . . for your copy, circle No. 283

Clean up on those dirty jobs

. . . by learning about Ebony cloth garments from this illustrated fact sheet. It tells how this clothing bounces back from rough laundering time after time, retains flexibility despite weather changes and protects workers against grease, grime and the dermatitis that often follows such exposure. *Dickson Safety Products Co.*

. . . for your copy, circle No. 284

Built to outlast others
4 times!



**New ARO
 IMPACT
 WRENCH**

- One-half inch, square drive, reversible, high-speed, 6,000 rpm.
- Impact mechanism consists of three functional parts.

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AIR TOOLS

Also . . . AIR HOISTS . . . LUBRICATING
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... for more details, circle No. 46 on Reader Service Postcard

69

CRANES
and MONORAIL SYSTEMS

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INSTALLED,
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- Spans Up to 120 Feet
- Capacities to 15 Tons
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... for more details, circle No. 47 on Reader Service Postcard

70

KNOW-HOW NOTEBOOK

30 BEST SAFETY PRODUCT MANUALS . . . continued

Selection chart for work gloves

Picking the right work glove for the job is easy when you use the two charts featured in this pocket-sized folder. Charts list types of gloves according to physical performance in various conditions and for chemical resistance to acids, solvents, etc. Some 50 models in different materials or coatings are described and pictured. *Edmont Manufacturing Co.*

... for your copy, circle No. 285

Focus on factory first aid

Focused on first aid, this four-page manual gives details on a line of completely equipped kits that will assure on-the-spot emergency protection for your personnel. Described and illustrated are aluminum Kanister kits, unit all-weather kits, industrial cabinets, a spray kit for burns, a combination folding stretcher outfit and first aid kit, and the Insta-Aid chart, a pocket-sized device that gives vital first-aid information at a glance. *B. F. McDonald Co.*

... for your copy, circle No. 286

Guards for machines, presses, gates, barriers

Individual data sheets on reels and guards for specific purposes make up this catalog with a picture and essential facts about each item. These include the universal and the disc type stock reel; adjustable rod guard for power presses; guards such as fly-wheel, belt and gear; safety starting devices for power presses; sweep guards and single stroke attachments for presses, and a combination gate and barrier guard. *John Hunin Safety Equipment Co.*

... for your copy, circle No. 287

Facts on featherweight face shields

Eight design advantages of this type of plastic face shield are listed in this fact sheet that covers four series varying as to kinds of headbands and spark deflectors. Ordering data for each series in various sizes are included. *Pulmosan Safety Equipment Co.*

... for your copy, circle No. 288

Quick facts on belts and axes

If your life . . . or safety . . . depends on a reliable belt, you can get quick facts on pomper and hand brake types in this two-page bulletin. It illustrates and describes five models, with or without axes. There are also data on three axes—one, a steel forged crash axe with rubber handle insulated against 20,000 v. *Atlas Safety Equipment Co.*

... for your copy, circle No. 289

Parts, prices for rubber respirator

Essential facts about a respirator with an all-rubber facepiece and a treated felt filter are given in this bulletin that lists quantity prices for the mask itself, for filters and for replacement parts. *Wilson Products Div., Ray-O-Vac Co.*

... for your copy, circle No. 290

Helpful hints on helmets and hard hats

If your job demands that you get hard-boiled on the subject of head safety, you'll find lots of answers to your questions in a series of brochures about glass fiber and aluminum safety hats and caps. Hard-boiled is the trademark of the line which includes roughneck and shorty caps and accessories (chin straps, liners, etc.), face shields, welding hood attachments. The fact sheet on fire helmets gives an easy order chart for selecting proper insignia. *E. D. Bullard Co.*

... for your copy, circle No. 291

Series of spec sheets, plus swatch selections

Enclosed in a convenient kit are a series of data sheets, each telling about different products in this firm's line of industrial gloves and apparel for chin-to-toe protection. One folder, an apron facsimile, contains 11 swatches of material used in the clothing. Price lists are included. *The Surety Rubber Co.*

... for your copy, circle No. 292

THERE'S STILL TIME

... to get your selection of the best manuals on **clutches, fluid drives, compressors, and switches**. See page 86 of the September Western Industry!

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Know your AIM*... Caterpillar Tractor Co. does... **Steel Strapping speeds idler wheel handling**

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, uses heavy-duty Acme Steel Strapping to eliminate slow individual handling and costly blocking of idler wheel shipments. Stacked units of two to four idlers are steel strapped to wooden pallets, with protective intermediate and top frames. (Idea No. U6-23)

This unitizing idea protects bearing hubs of idlers, safeguards against damage. Loading and unloading are improved by the use of mechanical handling equipment. Caterpillar Parts Departments now unload carloads of idlers in less time than formerly required for manual unloading, and with greater safety. Storage economies are gained, and inventory control simplified.

***Know your Acme Idea Man.** His wide experience in solving all types of product handling and shipping problems will provide Ideas that can be applied profitably to your operations. Call him at the nearest Acme Steel office. Or write Dept. WCU-107, Acme Steel Products Division, Acme Steel Company, 4901 Pacific Blvd., Los Angeles 58, Calif. Also San Francisco, Portland, Seattle.



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with Caterpillar
Tractor Co. on
methods for better
packaging,
handling, shipping.



STEEL STRAPPING

... for more details, circle No. 48 on Reader Service Postcard

HELPFUL LITERATURE

for the West's plant
operating executives

FOR YOUR FREE COPIES, circle appropriate key numbers on postcard, page 83

Measured work studies and maintenance costs

The use of measured work techniques for reducing labor costs in building cleaning and maintenance is the subject of this 28-page illustrated handbook written by a methods engineering firm. It explains how to determine your cleaning costs accurately, establish job time requirements, conduct a basic time study, establish quality and frequency standards, plan new construction for simplified future maintenance, set up and maintain daily work schedules, and select proper equipment. *Advance Floor Machine Co.*

... for your copy, circle No. 151

Facts and figures on Spher-Align pillow blocks

Tabulated data on dimensions, shaft sizes, weights and radial load ratings are featured in this bulletin about a new line of pillow blocks in ball bearing, roller bearing and sleeve bearing types for a full range of industrial uses. Sixteen models are illustrated and product features such as the Micro-Mount for fast and accurate seating on shafts, spherical roller bearing design, triple labyrinth seals and others are described. Tables and engineering drawings simplify selection. *Dodge Manufacturing Corp.*

... for your copy, circle No. 152

Fact sheets on roller and double pitch chains

Similar four-page fact folders focus on design advantages and industrial applications of two types of self-lubricating chains—roller type and double pitch. There are tables that show dimensions in inches and list prices, strength and weights for three sizes of the first, and transmission and conveyor types in the second. *Whitney Chain Co.*

... for your copy, circle No. 153

Fibre duct for warm air perimeter heating

Facts about a lightweight fibre duct for slab-floor perimeter heating systems appear in a four-page manual with installation pictures. How it is installed for loop, radial and lateral perimeter applications is described and sketched. Another detailed sketch shows various methods of anchoring ducts to avoid floating while pouring concrete and a table gives sizes and weights for 23 available sizes. *Sonoco Products, Co.*

... for your copy, circle No. 154

Airstream conveyors for bulk handling

Answers to many bulk material handling problems are given you in this 32-page technical information manual about pneumatic conveying. System diagrams of typical installations point out applications and flexibility of Airstream conveyors and over 70 illustrations show how air transports granular or powdered bulk material efficiently. The manual lists material which can be handled and describes specially-engineered systems. *Draco Corp.*

... for your copy, circle No. 155

How to pick right lube for 560 plug valve services

A two-page chart that lists alphabetically more than 560 flow materials which lubricated plug valves service, with a recommended Walworth lubricant number for each, is a feature of this 12-page selection guide and manual. Service range of each lubricant is given in another chart with a description of each and its temperature range. The book also covers function and essential properties of lubricants, how to select and apply them and proper installation. *Walworth Co.*

... for your copy, circle No. 156

Facts on flexible Rubbair doors

Construction details, design advantages, mounting information and ordering data on a line of flexible rubber doors are given in this four-page fact folder. Sketches point out pertinent advantages such as the V-cam hinges, air seals, plastic windows, door casings and window panels in these internally-cushioned doors made of multi-layer, natural rubber casing laminated to tough extruded rubber channel frames. Mounting information includes blueprints and dimensions. *Stic-Klip Manufacturing Co.*

... for your copy, circle No. 157

Data on monolithic concrete floor surfacing

A six-step picture sequence that shows you how to apply Monorock is a feature of this booklet about a type of monolithic concrete floor surfacing. What Monorock is, why it gives lasting performance and provides a harder, tougher, long-wearing surface are explained in the manual, which also has paragraphs on scope, installation, special surface finish, curing, etc. *Kalman Floor Co., Inc.*

... for your copy, circle No. 158

40-page manual covers packings and gaskets

Seven selected packing types designed to give you custom-built service on 95% of all packing applications are featured in this comprehensive 40-page catalog of mechanical packings and gasket materials. In the four pages of recommendation charts, these Big 7 types are identified for easy reference. The book contains illustrations, descriptions, service recommendations and specification charts to cover over 130 different products in the packings and gasket field. *Raybestos-Manhattan, Inc.*

... for your copy, circle No. 159

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SERVICE . . . SURVEYS

... for more details, circle No. 49 on Reader Service Postcard
WESTERN INDUSTRY — October 1957

LOW COST MARGIN OF SAFETY BETWEEN

DANGEROUS SLIP



SURE GRIP



Pattern actual size

Stops skids and slips *with* Raised steel figures diamond-shaped for maximum slip-skid resistance from all directions

Get maximum wear *with* Tough rolled steel floor plate

Easily fabricated *with* Ordinary shop equipment

No matching problems *with* Non directional pattern—minimum waste

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Solve your slipping problem *with* A.W. Super-Diamond as independent flooring, as an overlay—or used structurally.

For complete information write on company letterhead to Dept. SD-S14.

No other floor plate can match A.W. Super-Diamond's safety and durability at so low a cost.



Wherever oil, grease, or other substances raise special slipping accident hazards, we suggest a check on the special non-slip qualities of A.W. ALGRIP—the world's only abrasive rolled steel safety floor plate.



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ALAN WOOD STEEL COMPANY • CONSHOHOCKEN, PA.

Other Products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Hot and Cold Rolled Sheet and Strip—(Alloy and Special Grades)

... for more details, circle No. 50 on Reader Service Postcard

look beyond the price...

**you'll see that you get
the most for your money in**

MATHEWS CONVEYERS



A push button order filling system in which an operator at a control console directs the flow of material from 66 storage lines. Photo courtesy of Gallo Sales Co.

Most plant operating people, when they buy conveying systems, are looking for the equipment that is best for their plant—equipment that is designed to meet their individual requirements. They are looking beyond the price . . . looking to quality—to dependability. Mathews engineers have been designing and building conveying systems for over 50 years, and a great amount of this equipment has been applied in metalworking plants. This is why operating people everywhere have an extra measure of confidence in Mathews equipment—and why you see Mathews Conveyers in metal-producing and fabricating plants everywhere.

MATHEWS CONVEYER COMPANY WEST COAST SAN CARLOS, CALIFORNIA

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DALLAS • HOUSTON • EL PASO • HONOLULU, T. H. • SALT LAKE CITY



MATHEWS

Fifty Years of Leadership in Mechanized Handling

... for more details, circle No. 51 on Reader Service Postcard

Airco guide for easy electrode selection

If you're buying or using electrodes, you'll find this fact-filled 70-page pocket guide almost essential to correct choice and use. An electrode consumption calculator, in tabular form, is one of the book's best features, providing data for calculating consumption per linear foot in the welding of various types of joints. The guidebook describes each of the firm's electrodes, its color code, its application, and best procedure for its use in welding. Weldmetal chemical analyses and mechanical properties are fully explored and there is data on factors which determine selection, industrial and government specifications for filler metals and on testing of deposited weld metal. *Air Reduction Pacific Co.*

... for your copy, circle No. 160

What the Tote system of material handling can do

All the facts on the Tote system for bulk material handling are available in this detailed 20-page manual that shows how the system saves on labor and container costs, warehouse space, etc. It pictures and describes automatic filling and discharging stations, explains inter- and intra-plant applications of aluminum Tote bins and Tote tilts, and gives equipment construction specifications. Typical installations, as well as special applications, are shown and various methods of transporting unit containers are explained. The booklet also introduces two new products, Tote tanks and a stationary hopper tilt. *Tote Systems, Inc.*

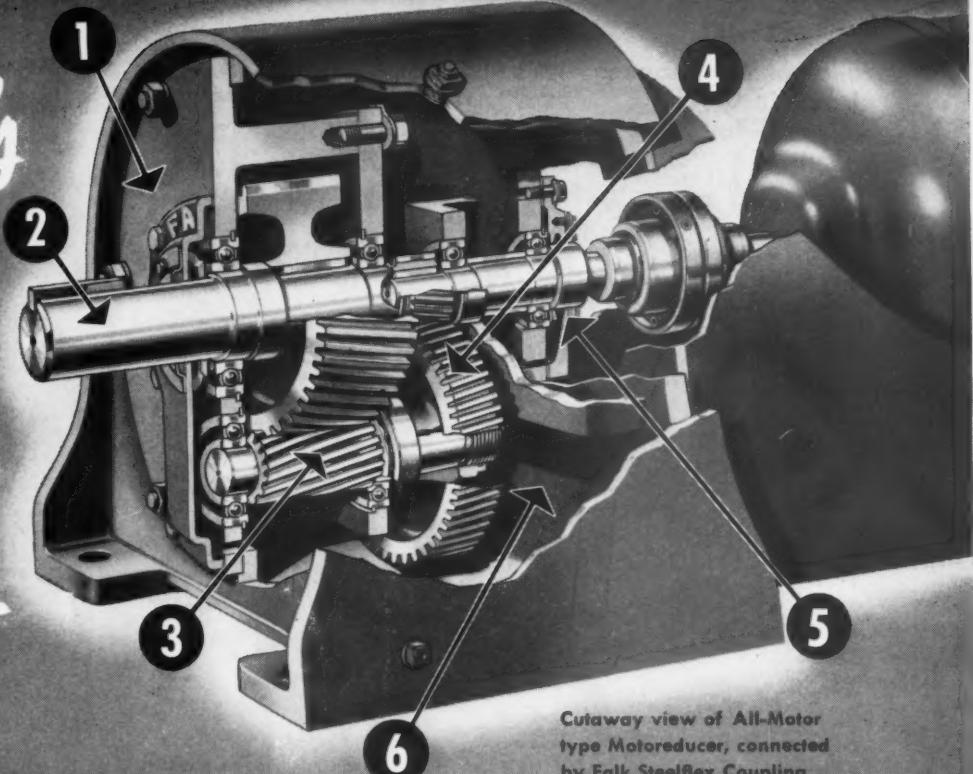
... for your copy, circle No. 161

Selection guide for 2,000 plastic industrial parts

More than 2,000 industrial parts available from open stock are listed in this comprehensive catalog on small injection molded and extruded plastic parts in nylon, marlex, polyethylene, butyrate and vinyl. Included are plug, cap and grip-plug closures, for round, square, rectangular, oval and triangular tubing; angle iron, bar and channel type closures; wire tips; bumpers, spacers and rollers; extruded plastic welting; U and E shape extrusions and T molding. Details on the firm's facilities and policies for custom parts are also given. *PIPCO International Corp.*

... for your copy, circle No. 162

Here's
the
inside
story—



Cutaway view of All-Motor type Motoreducer, connected by Falk Steelflex Coupling to standard NEMA frame motor

WHY Falk Motoreducers give better service—have longer life

Here is the "inside story" behind the all-steel All-Motor type FALK Motoreducer's universal reputation as a gear drive unmatched in quality, efficiency, dependability, ease of maintenance and long life. These "In-built" factors are—

1 ALL-STEEL HOUSINGS. Rugged, strong, rigid...all parts are manufactured from heavy steel plate, formed and welded in the Falk Weld Shop.

2 LARGE OVERHUNG LOAD CAPACITY. Large shafts, oversize bearings...rigid mountings with wide bearing spans to handle maximum applied loads.

3 PRECISION GEARING. Heat-treated alloy steel gearing, precision cut and shaved after heat treatment to eliminate distortion. Quiet, crown-shaved pinions.

4 EXTRA-CAPACITY GEARING. Special extra-capacity gear-tooth form with larger contact area gives greater strength, higher load-carrying capacity.

5 SEALED HOUSINGS. Splashproof, dust-proof, oil-tight construction. Dual closures and one-way vents keep oil in, dust and moisture out.

6 POSITIVE LUBRICATION. Large sump capacity...oiltight construction assures clean lubricant...revolving elements lubricated by direct dip.

When you buy or specify the All-Motor type FALK Motoreducer, you get all these—plus the tremendous advantage of full interchangeability of motors. Switch motors as desired—use any make, style or type of standard foot-mounted motor within the unit's AGMA rating—with a minimum of difficulty or "down time."

Available in sizes up to 75 hp—with or without motor—from convenient factory, field or distributor stocks, from coast to coast. Write for Bulletin 3100.



60,000 HOURS WITHOUT A FAILURE!

Sixty thousand hours is a lot of hours—but the FALK Motoreducer in the unretouched photo above has served that long without failure or need of repair.

This 3 hp unit is one of over 60 FALK Motoreducers in daily service in an Eastern plant of a large milling company, whose president says, in part:

"One of the main advantages of FALK Motoreducers is their adaptability to any motor. Reducers and motors can be easily interchanged.... Our service records confirm the wisdom of our choice of FALK equipment as our standard."

FALK

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in industry

THE FALK CORPORATION, MILWAUKEE, WISCONSIN

M A N U F A C T U R E R S O F

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

Functions and features of plug-in busway

A 20-page revised bulletin gives all the facts on the Type FVK plug-in busway designed primarily to serve as feeders for lighting and power loads. Ratings, weights, technical and installation data and guide form specifications are listed for the unit, which is suitable for 2- and 3-pole, 600-v. 3-phase, 4-wire, 120/208Y-v, and for 3-phase 4-wire 480Y-277-v, applications. *Distribution Assemblies Dept., General Electric Co.*

... for your copy, circle No. 163

Case histories on uses of solvent for flushing

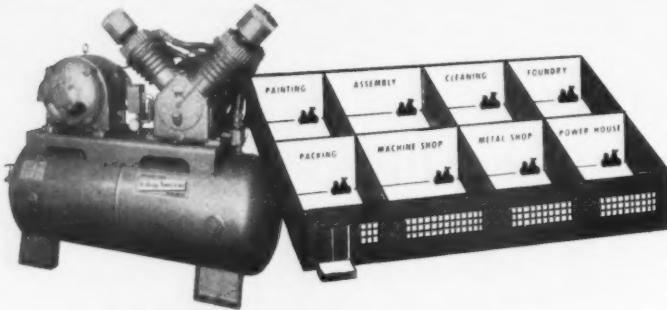
A series of case histories in this six-page folder presents examples where Gum Solvent B has been successfully used for equipment maintenance. A flushing medium that eliminates cleaning down-time, the solvent is added to lube or hydraulic systems during machine operation to loosen gums and sludges and hold them in suspension for draining in a routine oil change. Complete directions are given. *E. F. Houghton & Co.*

... for your copy, circle No. 164

HOW TO STOP

COMPRESSED AIR FRICTION IN LONG PIPE LINES

Air friction in long pipe lines costs money... in lost air volume and pressure... dissipated before performing any duty. It's one of the common faults of old-fashioned central source air systems - where friction losses may be as high as 47 pounds per 100 feet of pipe.



With KELLOGG-AMERICAN's "On-the-Spot" program of multiple small compressors, you compress air only to the pressures needed for each individual department's work. That means elimination of long pipe lines, a reduction of the number of pipe joints and outlets, and a reduction of power and operating costs. By decentralizing your compressed air system, your plant gains in flexibility, too - with never a danger of breakdown leaving the entire plant without air.

Survey your plant air system soon. Your Shields, Harper man will be happy to help you get the facts.

FREE! Compressor selector slide rule - automatically selects exact size needed to fit your air requirements - write today:



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HARPER
& CO.**

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76

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Mobile radios for material handling vehicles

If you're in the market for equipping your material handling vehicles with mobile two-way radio equipment, you can get the needed data from this six-page description of a complete new RCA line. Pictures, specifications and ordering information are given for units to be used with either gasoline or electric powered trucks, tractors, etc. Design features such as "forward vision" controls, choice of horizontal or vertical mounting, weatherproof case and shock mounts for rough riding conditions, are explained. *Radio Corporation of America.*

... for your copy, circle No. 165

Standard shapes, sizes of grinding wheels

First revision in ten years of the Grinding Wheel Simplified Practice Recommendation, this 76-page edition is arranged in two parts—use classification and listing of sizes and types. The first part segregates all shape and size recommendations for new machine design so that designers need only check the listing for the specific type of operation to locate wheel shapes and sizes available. The second section consists of a complete listing of all standard wheel sizes available in each standard shape type. The publication also includes six new basic wheel shapes, word descriptions to clarify line drawings and a discussion of how a simplified practice recommendation is developed and its benefits to users. *Grinding Wheel Institute.*

... for your copy, circle No. 166

How to make your own cost-cutting flow chart

The why's and how's of cutting your material handling and storage costs are graphically presented in a ten-page guide book that includes a sample flow chart and information for making and using one of your own. The sample chart uses symbols defined in the book, notes men and equipment involved in a hypothetical material handling operation, and records travel and time required for each phase of the process. Designed for planners of new material handling systems and for supervisors who desire to cut operational costs, the guide book points out hidden cost factors and details how various equipment can be used. *E. C. Buehrer Associates, Inc.*

... for your copy, circle No. 167

Among the thousands of users...



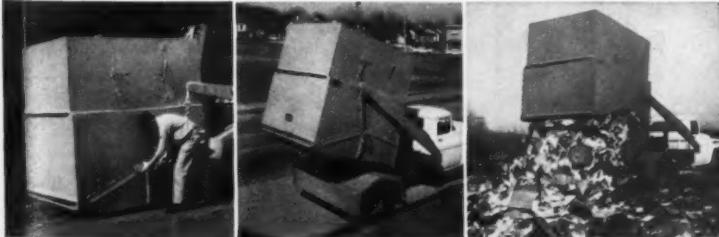
THE
DEMPSTER
DUMPSTER[®]
SYSTEM

Helps Make Possible Plant-Wide
Cleanliness and Sanitation at . . .
ELI LILLY and COMPANY

Noted for its plant-wide cleanliness and sanitation, Eli Lilly and Company attributes much of the success of its efficient, sanitary handling of bulk materials to the Dempster-Dumpster System. In addition to the fire hazards, the unsanitary waste material accumulation and collection with conventional methods, the high cost of handling constitutes a further problem for many manufacturers. Thousands of users like Eli Lilly and Company have found the Dempster-Dumpster Sys-

tem helps to solve all these problems! One truck-mounted Dempster-Dumpster serves scores of big steel detachable containers, one-after-another. There is a container available or that can be built to suit the requirements of all materials, regardless of description. And one man, the Dempster-Dumpster driver, handles them all! Capacities up to 21 cu. yds. Payloads up to and over 36,000 lbs. Ask us to forward complete literature. Manufactured by Dempster Brothers, Inc.

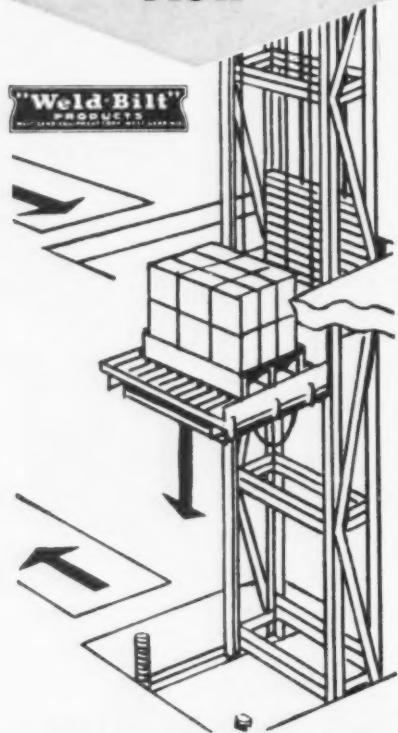
Picking Up, Hauling and Dumping a 15 cu. yard Universal Container.



DEMPSTER BROTHERS, 5107 N. Knox, Knoxville 17, Tennessee

... for more details, circle No. 54 on Reader Service Postcard

NEW...for Floor-to-Floor Production Flow



Weld-Bilt Vertical Transportation

Here's conveyor automation between floors—one, two or three floor levels—with minimum remodelling. Automatic loading, unloading, lifting or lowering to match conveyor speed. Controls, brakes, switches, platforms—all engineered to your needs.

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Write for profitable suggestions on your own
floor-to-floor conveyorizing with Weld-Bilt "Ver-
tical Transportation."

WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS

307 Water Street • West Bend, Wisconsin
... for more details, circle No. 55

Facts on heavy duty commercial fans

Facts on construction, operations and specifications of a rugged line of fans designed for heavy industry fill this 24-page manual that describes direct drive units and V-belt fans especially designed for low noise level requirements. The direct drive type comes in 9 different sizes, and furnished for 90 deg. adjustment as to position of discharge, with either cast iron or steel housing construction. V-belt steel-housed packaged fan units are made in 14 sizes from 7 5/16 to 33 in., for volumes to 18,000 cfm. and pressures to 1 1/2 in. s. p. The booklet features performance data, dimensions, drawings and practical applications. *Chicago Blower Corp.*

... for your copy, circle No. 168

Basic principles of optical tooling

If you build large mock-ups, jigs or structures to close tolerances, this 56-page manual about optical tooling equipment will prove valuable to you. Covering the three basic instruments—alignment telescope, jig transit and price level—as well as scales, micrometers and other accessories, the book has photographs and drawings to illustrate the items and sketches to show optical principles used in applying the equipment. There are sections on terminology, adjustments and advantages of optical tooling in industries, research projects, etc., *Keuffel & Esser Co.*

... for your copy, circle No. 170

PVC pipe fittings, valves and flanges

You'll find pressure-temperature charts, chemical resistance tables and support spacing formulas in this book of technical data about unplasticized polyvinyl chloride pipe fittings, valves and flanges. There are fabrication suggestions, installation information, and complete specifications for both threaded and socket types, made of both normal and high impact material. Picture sequences show how to solvent cement and how to thread PVC. Other pages point out design, construction advantages and list leading users of the piping systems. *Tube Turns Plastics, Inc.*

... for your copy, circle No. 169

Guide book covers phases of industrial tire use

Explaining all phases of industrial tire use, this 36-page illustrated manual gives specifications for all types, details the company's complete line, and the use of each type. There are also data on variations in pneumatic tire capacities at various speeds, wheel and caster combinations available, the latest truck manufacturers' tire specifications, and how to change steel wheels to rubber-tired wheels in three easy steps. Included in the tire types covered are solid, pneumatic, semi-pneumatic and vulcanized-on wheels. *B. F. Goodrich Tire Co.*

... for your copy, circle No. 171

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Die-Matic

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WIC

HOMART

Clayton
DYNAMOMETE

Air Conditioned

ASHLEY

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MADE IN LOS ANGELES

WICO

... for more details, circle No. 56 on Reader Service Postcard

Load Lagger system for material handling jobs

The Load Lagger system and how it works are detailed in a 12-page manual that pictures typical uses of the material handling method that consists of a number of patented detachable steel containers handled by a standard truck equipment with a specially engineered hydraulic hoist mechanism. Rubbish disposal, paper mills, sewage disposal plants and petroleum refineries are among the applications shown. The book also gives descriptions of standard and special containers, special Load Luggers and accessories. *Ingersoll Kalamazoo Div., Borg-Warner Corp.*

... for your copy, circle No. 172

Facts on precision, commercial die sets

Sizes, dimensions, prices and other ordering data for a full line of die sets—both standard two pin series and rear two pin rectangular series—are given in this 20-page catalog that describes and illustrates precision and commercial die sets. *E. W. Bliss Co.*

... for your copy, circle No. 173

24-page manual of files, saws and carbide tools

You'll find a file for practically every purpose, as well as carbide tools, hammers, blades for hacksaws, bandsaws and both oil and air hardening die steel in this comprehensive catalog. Sketches, pictures, and specifications are given for all the items, which include scores of files, both American and Swiss patterns. There are sections on selecting the correct tooth spacing for power and hand hacksaw blades and on how to get the most out of power blades. *Heller Tool Co.*

... for your copy, circle No. 174

Reversible



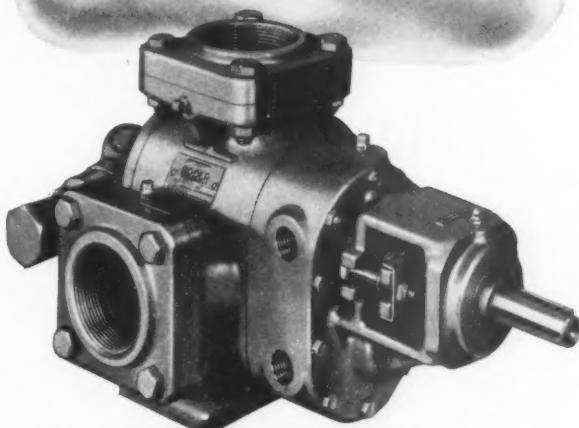
Ratchets

IN STOCK AT
HOWARD
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COMPANY

... for more details, circle No. 57

WESTERN INDUSTRY — October 1957

NEW ROPER PUMP WITH STEAM CHEST



LOW COST METHOD OF HEAT TRANSFER TO PUMP AND PACKING

Capacities from 27 to 223 GPM

Pressures Up to 100 PSI

This is the same Roper Series 3600 Pump as found in general transfer installations, but with the added feature of a steam chest. A rotary gear unit, it is available with or without relief valve. ... also furnished with gear reduction, if desired.

TWO TYPES OF CONSTRUCTION:

Spec. 3878 Fitted with Bronze Bearings

Spec. 4049 All Iron Construction

All Units Fitted with Aluminum Gaskets
and High Temperature Packing

Steam Chest: Located between case and outboard bearing to transfer heat to both pump and packing. A low cost method for handling thick, viscous liquids. Can be used with steam, hot water, or heat transfer oil. Pump and steam chest static tested at 300 PSI. Recommended pressure with steam is 125 PSI.

- Four ports in steam chest for installation convenience.
- Hardened gears and shaft precision ground; steel shaft induction hardened.
- Equipped with high temperature packing (600° F. max.) for effective sealing and long life. Pump fitted with aluminum gaskets.

Send for Bulletin No. 29

West Coast Office
Geo. D. Roper Corporation
2011 S. Santa Fe Ave.
Los Angeles 21, California

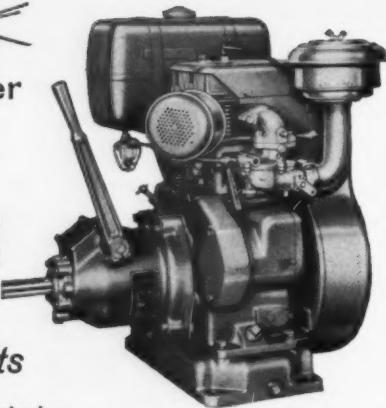
ROPER
Rotary Pumps

... for more details, circle No. 58 on Reader Service Postcard

a **BIG** NEW
4-cycle, single cylinder
air-cooled engine

the

WISCONSIN 12½ hp Model AGN ...by Engine Specialists



Model AGN Engine with Clutch Assembly. Also available with stub shaft or with Reduction, Clutch Reduction and/or Electric Starting.

Backed by an exclusive engine designing and production background dating from 1909, plus today's most advanced engineering knowledge and technique, this new engine is destined to become another BIG winner!

Putting 12½ hp. into a single cylinder air-cooled engine calls for basic High Torque . . . the load-holding Lugging Power that keeps the equipment working through sudden shock loads. It also calls for heavy-duty construction in all details . . . plus dependable cooling under all weather conditions from sub-zero to 140° F.

Bulletin S-216, just off the press, will give you details about the Model AGN. Write for it.



WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

... for more details, circle No. 59 on Reader Service Postcard

FASTER DELIVERY (FROM NUTTING WEST COAST WAREHOUSE)



OVERNIGHT DELIVERY to most areas of the most popular models and sizes of Nutting Floor Trucks, Casters and Wheels.

FACTORY CARLOAD SHIPMENTS at regular intervals reduce your freight expense and provide adequate replacement of stock items.

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NUTTING TRUCK AND CASTER COMPANY

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... for more details, circle No. 60 on Reader Service Postcard

Here's a one-man-crew material handling system

A one-man-crew material handling system and how it works is described in this eight-page application analysis. As its name implies, this is a system where each employee works alone, serving simultaneously as stripper, checker and loader, using electric fork lift trucks and storage racks. The system's advantages and the type of equipment required for it are detailed, as well as economies in time and money. *Lewis-Shepard Products, Inc.* . . . for your copy, circle No. 175

All sizes, shapes of abrasive mounted wheels

Versatile abrasive tools that do just about everything in the field of small, off-hand and precision grinding are described in this eight-page manual. All sizes and shapes of the company's A and B series are shown in actual size, with dimensions indicated, and typical shapes of the larger W series, with complete listing. Typical uses for the various shapes are given and the new standard suffix designations for mandrel projections and diameters are included. *Simonds Abrasive Co.* . . . for your copy, circle No. 176

What you can do with power and free conveyors

How recent modifications and additions to component units of power and free conveyors have increased the versatility of this type of overhead material handling system is the subject of this 16-page booklet. It describes and illustrates ten major material handling functions that invite the use of these systems, such as dispatching materials automatically, storing and banking materials, recirculating loads and handling indexing operations. Several installation pictures taken in many different industries emphasize the system's diversified uses. *Jervis B. Webb Co.*

... for your copy, circle No. 177

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... for more details, circle No. 61

Spec sheets on belting and industrial hose

Three types of special hose and several varieties of belting for elevators and conveyors are covered in this four-piece literature offering. Described are four grades of fire protection hose; six sizes of cord-inserted suction hose and a dozen kinds of belting—some that is abrasion resistant, specifically for high tonnage, for package conveyors, canning, etc. *Moore Mfg. Inc., Div. of Quaker Pacific Rubber Co.*

... for your copy, circle No. 178

Selection guide for wrenches, car movers

Reversible ratchet wrenches, strap wrenches, railroad car movers and custom wrenches for special jobs are described and pictured in this 12-page manual. It includes specification and ordering data for five series of gear and socket wrenches and several models of the other types. A chart of wrench openings from $\frac{3}{8}$ to $9\frac{1}{8}$ in. is included. *Lowell Wrench Co.*

... for your copy, circle No. 179

Economics in overlay applications for all metals

"Hard Surfacing Maintenance—Industry's Economy Weapon" a technical publication on overlays, treats wear and the need for overlays for abrasion, corrosion, heat and impact. Overlay applications and hard surfacing welding procedures are illustrated with 57 photos; charts provide additional data, and photomicrographs show advantages of shallow penetration, minimized dilution and smallest possible heat-affected zone. Case histories of various uses are featured and a check list helps the welder determine which of 15 characteristics his overlay deposit should exhibit. *Eutectic Welding Alloys Corp.*

... for your copy, circle No. 180

Whiting idea book gives profit-making methods

A pocket-sized booklet divided into sections by industry for easy reference is filled with pictures and text for improved cost-cutting methods and advanced equipment that suggests ideas for new products and markets. On-the-job illustrations show how the firm's cranes, Trambeam handling systems, Trackmobile, foundry, railroad and chemical processing equipment can be efficiently used in a wide range of industries. Men in metalworking, process industries, maintenance, transportation, etc. can check the section of concern to them for tips on how other firms in their own field are building profits. *Whiting Corp.*

... for your copy, circle No. 181

HOW MUCH
CYLINDER POWER
DO YOU NEED?



Manasha Plywood Corp., North Bend, Ore., uses *Ledeen CYLINDERS* on log kickers.

This 6" *Ledeen Cylinder* has been in operation for approximately 4 years. It picks up short logs and stacks them two high, or pushes one or two layers of logs ahead with ease.

Here is another example of how *Ledeen Cylinders* provide positive, dependable power—with low maintenance and long life—for a wide variety of uses in the timber industry.

Standard cylinders available from stock in 1½" through 12" bores. Special cylinders up to 20". These cylinders offer a wide range of capacities to meet your power requirements.

How much
CYLINDER power
do YOU need?

Ledeen CYLINDER CAPACITIES																
Size of Cylinder	CAPACITY OF CYLINDERS FOR VARIOUS PRESSURES, LBS. PER SQUARE INCH															
	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	5"	6"	8"	10"	12"				
1/2"	65	78	97	102	117	132	143	154	165	1,080	1,180	2,050	2,700	4,050	5,400	6,150
3/4"	130	160	189	216	243	270	303	340	377	2,050	2,250	3,200	4,050	5,400	6,150	7,000
1"	214	259	340	385	462	488	542	592	632	3,000	3,200	4,140	4,710	6,200	8,410	12,540
1 1/2"	410	485	560	640	720	790	860	930	1,000	6,000	6,600	9,000	11,000	14,000	18,000	22,000
2"	725	887	1,035	1,171	1,240	1,311	1,381	1,451	1,521	12,000	12,700	19,800	26,510	39,760	52,470	74,530
3"	1,236	1,389	1,535	1,711	2,030	2,451	2,871	3,291	3,711	12,000	12,700	19,800	26,510	39,760	52,470	74,530
4"	2,036	2,387	2,697	3,179	4,290	4,712	5,088	5,464	5,846	14,000	14,700	21,800	28,510	41,760	54,470	77,530
5"	3,037	3,687	4,297	5,088	6,400	7,000	7,700	8,400	9,100	21,000	21,700	30,800	37,510	54,760	67,470	80,530
6"	4,037	4,887	5,687	6,400	7,000	7,700	8,400	9,100	9,800	30,000	30,700	40,800	47,510	64,760	77,470	90,530
8"	6,057	7,887	9,687	11,400	12,400	13,400	14,400	15,400	16,400	40,000	40,700	50,800	57,510	74,760	87,470	100,530
10"	8,057	10,887	12,687	14,400	15,400	16,400	17,400	18,400	19,400	50,000	50,700	60,800	67,510	84,760	97,470	110,530
12"	9,057	12,887	14,687	16,400	17,400	18,400	19,400	20,400	21,400	60,000	60,700	70,800	77,510	94,760	107,470	120,530

Send for this cylinder capacity chart. It will help you determine the size *Ledeen Cylinder* you need to meet your power requirements.

Write for Bulletin 500

Ledeen Mfg. Co.

3340 North Gilman Road
El Monte, California

... for more details, circle No. 62 on Reader Service Postcard

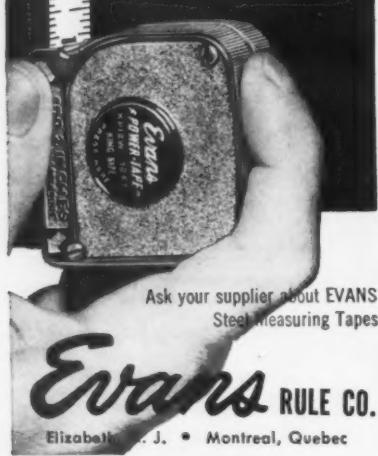
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Evans flexible steel measuring tapes shave seconds from every measuring job. Jet black markings on snowy white background give exact readings at a glance. Big, easy-to-see numerals show both inches, and feet-and-inches. There's an Evans tape in every size and shape . . . at prices that mean economy. Best of all, Evans blades are replaceable quickly, easily.

Tapes may be supplied with your company name plate, if desired, to give to your customers as a wonderful good-will builder!



... for more details, circle No. 63

82

Uses, benefits of double dome skylight

A double dome skylight, that is a single lightweight unit made entirely of glass fiber reinforced plastic, is described and illustrated in this four-page brochure with examples of uses and benefits of the light. Specifications are provided for three types—standard-type self-flashing, bond-type self-flashing and curb-mounting. Advantages outlined include the product's ability to transmit great amount of light with a diffused effect; strength plus lightness, and prevention of heat or conditioned air loss. *Corrulux, L-O-F Glass Fibers Co.*

... for your copy, circle No. 182

Two manuals on forest laws and practices

Pocket-size manuals, one each for Washington and Oregon, with latest code changes and other revisions are keyed to brief loggers on forestry laws and to strengthen these by recommendations for good forestry. A section new this year recommends practices for stabilizing forest soils such as road location and design to minimize soil movement, proper road drainage, installation of waterbars on different roads. *Industrial Forestry Assoc.*

... for your copy, circle No. 183

Getting right truck and attachment for each job

This condensed 12-page guide will help you choose the right truck and attachment for practically every mechanical handling application. Covering lift trucks up to 20,000-lb. capacities, mobile cranes, straddle truck carriers, Tugster tractors and platform trucks, the manual gives specifications such as load capacity, stacking aisle and turning radius, tire size, weight, optional equipment, etc. Attachments include uprights, clamps, booms, rams, scoops, aprons and many other items. *The Hyster Co.*

... for your copy, circle No. 184

How to make time interval measurements

Diagrams, photos and schematics illustrate this nine-page book that describes techniques for using time interval meters. Among the subjects covered are a description of time interval meters, measurement of pulse width and elapsed time, low frequency period measurements, timing relay operations, testing camera shutter speeds and measuring velocity with time interval meters. *Beckman Berkeley Div. of Beckman Instruments, Inc.*

... for your copy, circle No. 185

12 kinds of portable conveyor equipment

Detailed information on 12 standardized gravity and power conveyor units is presented in this 32-page manual with general instructions on their use, specifications, design advantages, pictures, diagrams, and charts. It covers the All-purpose Roller conveyor, Litewate Roller conveyor, Handibelt, Handipiler, Wheel conveyor, Extendovveyor, Utility Belt Conveyor, Handidrive, Inclinebelt, E-Z Merger, Partsbelt and Levelbelt. *Standard Conveyor Co.*

... for your copy, circle No. 186



RE VOLVATOR CO.
8798 Tonnele Ave., North Bergen, N. J.

... for more details, circle No. 64

Plumb



Hammers



... for more details, circle No. 65

WESTERN INDUSTRY — October 1957

70 pages about roller chains and sprockets

Selection factors, speed ratios, installation and lubrication recommendations, chain length calculation and conversion tables are among the features of this 70-page catalog that covers a great many types of roller chains and sprockets. Construction and design advantages of the line are described and illustrated, and nine case history pictures show varied applications. Included are sections on roller chain drive casings, cast iron hubs, chain tools, ready-to-use flexible couplings and chains for conveying and power transmission. *Diamond Chain Co., Inc.* . . . for your copy, circle No. 187

Data on enclosed gear and variable speed drives

Selection charts for six types of enclosed gear and variable speed drives are featured in this four-page folder that lists all stock drive sizes and horsepower ratings. Types described and pictured are gearmotors, motor-gears, worm gear, parallel shaft gear, in-line helical gear and positive infinitely variable speed drives. The booklet includes a coupon for obtaining complete catalog data on any of the drives. *Link-Belt Co.*

. . . for your copy, circle No. 188

Details on delivery system for bulk gases

The bulk delivery method of handling industrial gases in large quantities is discussed in a 16-page pamphlet that illustrates several types of delivery units and explains the advantages of each. Various plans for trailer unit parking, with yard space required by each, are diagrammed; typical installations are pictured, and unit specifications are tabulated. The booklet includes related information on control, equipment, measurement of gas consumption and distribution pipelines. *Air Reduction Pacific Co.*

. . . for your copy, circle No. 189

Cooling water treatment

The problems of corrosion and tower wood deterioration as encountered in recirculation cooling water systems are treated in this eight-page technical paper that traces the effect of the treatment introduced to control corrosion and eliminate deterioration in a natural gasoline plant. *Betz Laboratories, Inc.*

. . . for your copy, circle No. 190

Metallic lubrication means MOLUB-ALLOY®

Slashing total lube costs by more than half, MOLUB-ALLOY gives advantages no other product can match.

For all gears, bearings, sliding surfaces

MOLUB-ALLOY lubrication means greatly reduced friction, less wear to vital parts. Lubricating metallic solids, built into all types and weights of oils and greases improve the bearing surface area through plating, preventing metal to metal contact.

Makes conventional lubes old-fashioned

Designed to reduce the overall costs of lubrication, MOLUB-ALLOY is used by nationally known companies throughout industry saving thousands of dollars in reduced down-time and labor in application by extending lube cycles, with complete safety, up to 5 to 1. Inventory is trimmed and simplified by the wide individual range of each oil and grease.

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NATIONAL ACCEPTANCE THROUGH UNMATCHED EXPERIENCE. IMITATIONS MAY PROVE TO BE COSTLY EXPERIMENTS

REDUCE MAINTENANCE COSTS
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. . . for more details, circle No. 66 on Reader Service Postcard

NEW EQUIPMENT

for Western plant operation,
production, and maintenance

USE RIP-OUT POSTCARD, page 83, for more information on products described

FOUR-WHEEL SELECTOR TRUCK ... for tractor-trailers, other uses



come in 9 different deck sizes, from 30 x 48 in. to 36 x 60 in. Decks are of steel-bound hardwood. Rounded corner pads at the rear of the deck and a corner bumper at the front protect dragline mechanism and pushing handle. A full-width blackboard and hinged clip board come as standard equipment. *Lewis-Shepard Products, Inc.*

... for more details, circle No. 191 on postcard

IMPACT WRENCH ... air-powered, reversible, $\frac{3}{8}$ -in. capacity



Unusual ruggedness and simplicity of design for extra-long life and low maintenance are features of this Model 8100 air-powered reversible impact wrench of $\frac{3}{8}$ -in. heavy-duty capacity. Made with an all-steel nose housing, the wrench has a reversing button, built-in automatic oiler, hand-fit pistol grip. In a normal operating cycle the threaded fastener will spin freely and the tool begins impacting only when torque resistance is built up. Air regulator allows adjustment of motor speed according to torque requirements. Specifications include 6,000 rpm. motor, $\frac{1}{2}$ -in. square drive, rated capacity for $\frac{3}{8}$ -in. heavy-duty bolts, spindle offset $1\frac{1}{8}$ in., height 7-1/32 in., length 6-13/16 in., weight 6 lb. *The Aro Equipment Corp.*

... for more details, circle No. 192 on postcard

PUMPS WITH STEAM CHEST ... for handling viscous liquids



Pumps can be truck mounted or driven through an integral gear reduction by electric motor or gasoline engine. Other features include four ports in the chest, hardened gears and shaft, deep packing box, adjustable relief valve and gear reduction for motor driven units. *Geo. D. Roper Corp.*

... for more details, circle No. 193 on postcard

CONVENIENT APPRAISOR ... for gaging new equipment additions



Important decisions about new equipment purchases will be quicker and easier if you use this ingenious appraiser. The six-inch-diameter plastic device requires but a quick setting of the dials to give you the facts on whether the expenditure is justified by returns in volume and profits. Appraiser scales are clear, cover a wide range of figures. No worry about decimal points. Priced at \$7.50 f.o.b., the appraiser can save you this amount many times over by cutting computational time and eliminating unwise purchases. *Van De Mark.*

... for more details, circle No. 194 on postcard

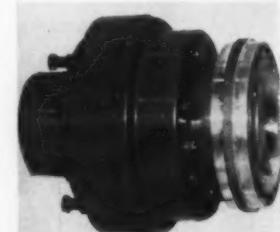
TOWING TRACTORS ... featuring torque-converter drive



Model T-50 with 5,000-lb. drawbar pull and Model T-60 with 6,000 lb. are first of a series of Paymover towing tractors for commercial applications. Two-wheel drive models, the units are compact and maneuverable, with torque-converter drive and automatic transmission. Ideally suited to industrial tractor-trailer operations, rail and motor truck terminal, and stevedoring operations, as well as the handling of all types of corporate aircraft for airport terminal movement. The tractors are equipped with head and tail lights. Many coupler attachments available. *The Frank G. Hough Co.*

... for more details, circle No. 195 on postcard

CLUTCH COUPLINGS ... redesigned for higher, lower ratings



Heavy-duty, low inertia, positive engagement type of magnetic clutch coupling, this recently redesigned line utilizes serrated teeth for transmitting high torques without slippage. Where slippage is not needed and the use requires merely engagement and disengagement, the coupling offers other new features—ratings extended from 1,200 through 3,200 lb.-ft. torque, Class B insulation as standard, improved thrust bearing and acceptance of larger shaft diameters. Originally designed for use in steel, aluminum and other mills on screwdowns, as now broadened it meets a wider range of applications. *Dings Brakes, Inc.*

... for more details, circle No. 196 on postcard

NEW YALE PARTS DEPOT USES ELECTRONICS TO KEEP YALE TRUCKS ON THE GO!



**Now—protection against
excessive downtime loss
for Western Industry**



At Yale's new major parts depot in San Leandro, California, a modern, electronic machine card system processes incoming orders at high speed. In a matter of hours, factory-approved replacement parts are on their way to Yale customers.

To you, as a Yale Industrial Lift Truck user, this means service you can depend on. Your Yale trucks are kept in top operating condition because your local Yale representative or branch office—backed by this new Western sup-

ply depot—quickly provides you with the parts you need to prevent excessive downtime loss.

And—to further serve the growing need of expanding Western industry for efficient handling of any type of material—Yale now *builds* industrial lift trucks in its new San Leandro plant. Thus, whether you demand speedy service, fast delivery of new equipment, or both, you can depend—more than ever—on Yale's ability to meet the cost-and-efficiency requirements of *your* handling operations.

YALE* **INDUSTRIAL LIFT TRUCKS AND HOISTS**

*REG. U. S. PAT. OFF.

The Yale & Towne Manufacturing Co.: Philadelphia, Pa., San Leandro, California

Gasoline, Electric, Diesel & LP-Gas Industrial Lift Trucks • Worksavers • Warehouses • Hand Trucks • Hand and Electric Hoists

... for more details, circle No. 67 on Reader Service Post card

WESTERN INDUSTRY — October 1957

LARGEST PLASTIC STOCKS in the West!
SHEETS • RODS • TUBES
immediate delivery!

Plexiglas
"Cadco" Cast
Acrylic
Rods & Tubes
Acetate
Nylon
Teflon
Vinylite
Polyethylene
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Polyester Resin

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SEND FOR FREE BOOKLETS TODAY

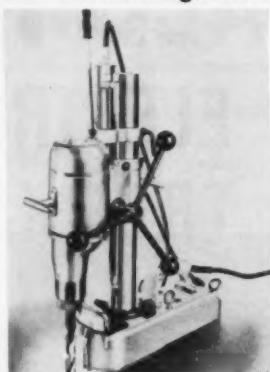
Gentlemen:
Please send me the following NEW free booklets:
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 Design and fabrication data on Plexiglas.
 Data sheet on CADCO acrylic tubes & rods.
 Complete plastics catalog.

NAME _____
ADDRESS _____ CITY _____
COMPANY _____

... for more details, circle No. 68 on Reader Service Postcard

DRILL PRESS

... 1½ in. magnetic unit for either a-c. or d-c.



Tolerance built to drill holes with 1/64-in. accuracy, this press for heavy industrial drilling will not overheat and reduce its magnetic hold after a few hours. Designed for continuous operation, on either a-c. or d-c., it has a drill point locator for immediate, exact positioning, two-piece construction and remote control hydraulic power, so operator can stand as far as six ft. from the unit during drilling. Other features are a built-in headlight, safety grip trigger switch on the base to control magnetic contact and eye bolts located on the base for securing with safety chain. Driven with a special Black & Decker heavy-duty motor, its drilling capacity is 1 1/4 in. in steel, with 1-in. tapping and reaming capacities in steel. Length of drill stroke is 15 in. *The Black & Decker Mfg. Co.*

... for more details, circle No. 197 on postcard

PUSH BUTTONS

... for magnetic controls and solenoids

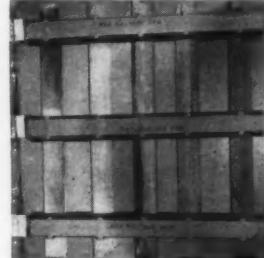


A base-mounted control mechanism, front-accessible wiring terminals and reversible formed steel base with a knockout and pipe connection for either-end or straight-through wiring are features of this Series BA standard duty push buttons. Providing an economical pilot control for magnetic controls and solenoids of other magnetically operated devices, the push buttons may be furnished with one normally open contact, one normally closed contact or one normally open and one normally closed contact, on each button. Wrap-around cover of glass fiber reinforced alkyd has natural insulating properties and will withstand rough handling. Cover is removed by loosening two screws, as is the control mechanism. *Furnas Electric Co.*

... for more details, circle No. 198 on postcard

EXPENDABLE PALLET

... 40 x 48 in. unit weighs only 14 lb.



Made of corrugated paper and wood, this Shipaway Pallet weighs less than half as much as conventional wooden pallets of the same size. Slated to cost substantially less than a dollar, the unit, according to the company, will be capable of handling loads up to 4,000 lb. For the present, the new manufacturer will be the exclusive supplier but the firm will also manufacture machines for assembly of the pallet and these will be leased to pallet users throughout this country and Canada. *Bulldog Pallet Co.*

... for more details, circle No. 199 on postcard



New, lightweight
VICTOR
Duplicutter
 MODEL DC-2000

Portable Model DC-2000 cuts circles to 19½" diameter, rectangles to 12" x 35", and metals to 8" thick. Torch accommodates all Victor 1-101 and 1-100 cutting tips, through size 5.

**Flame cuts parts accurately,
 saves handling and set-up time,
 increases labor efficiency.**

This portable VICTOR DUPLICUTTER weighs only 36 pounds. Operator easily carries it to any work location in plant, field or warehouse . . . thus saving you time and cost of moving materials. Set-up takes minutes only. You lose no time leveling DUPLICUTTER—its magnetized feet use stock being cut as working base. And it's so simple one man easily handles production from 2 or 3 DUPLICUTTERS.

Precise controls and powerful, permanent magnet in template follower enable you to duplicate parts to production tolerances of plus or minus 1/64". Easy, quick interchange of templates makes DUPLICUTTER practical for both long production runs or duplication of single part.

Why not see for yourself how easily the VICTOR DUPLICUTTER handles, how fast and accurately it cuts? Call your VICTOR dealer now and ask him for a demonstration on your job . . . or write us for descriptive Bulletin 353.



For maximum efficiency and safety,
 use genuine Victor tips and parts

30

VICTOR EQUIPMENT COMPANY

Mfrs. of welding & cutting equipment; hardfacing rods, blasting nozzles; cobalt & tungsten castings; straightline and shape cutting machines.

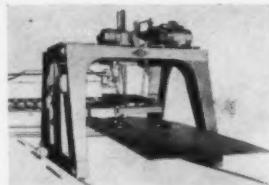
844 Folsom St.
 San Francisco 7

3821 Santa Fe Avenue
 Los Angeles 58

... for more details, circle No. 70 on Reader Service Postcard

90

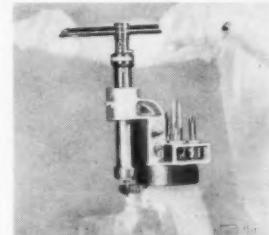
AUTOMATIC PLATE HANDLER
 ... to transport sheet or plate stock



Available in four capacities from 1,000 to 4,000 lb., these plate handling systems handle strip, sheet or plate stock from 6 to 96 in. wide, in lengths to 20 ft. Designed to impile, transport and deliver sheet to shears, presses, cleaning or polishing machines, the handlers are also used to restack material from a machine, or to transfer stock between conveyors and piles, etc. The vacuum lift permits handling of most types of stock without marring surface. Able to pick up from piles up to 36 in. high, the handler automatically contacts top sheet of the pile as it diminishes, without adjustment. A heavy duty piston type pump operates the vacuum. Controls may be instantly set for fully-automatic, semi-automatic or manual operation. *Noble Co.*

... for more details, circle No. 200 on postcard

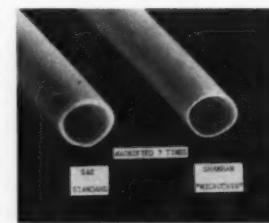
MAGNETIC TAPPER
 ... for on-the-spot maintenance, production



Announced as the first tool of its kind on the market is the Mag-Tool magnetic tapper that attaches to ferrous surfaces with an electro-magnetic base that develops up to 800 lb. of magnetic pull. The tool provides rigidity and elimination of lateral pressure for prevention of tap breakage and parts spoilage. Operating in any position without loss of accuracy, the tapper performs on-the-spot maintenance or production jobs. Operating on 115 a-c., it weighs but 10 lb., uses any assortment of manual or power 1/2-in drive attachments, is equipped with tap holders for 1/4, 5/16, 3/8, and 1/2 in. taps, with other size holders available. *Magnetic Tool Corp.*

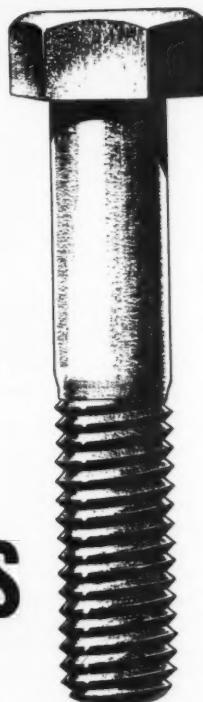
... for more details, circle No. 201 on postcard

TEFLON SPAGHETTI TUBING
 ... thin, flexible, strong, heat-resistant



Ideal for countless applications in the electronics field, plus practically all applications in which aircraft standard wall tubing is used, this thin-wall Teflon spaghetti tubing, called Microthin, is claimed to be the most flexible, thinnest made, yet retaining all strength and properties of the heavy type. Lower priced because it requires less material to make, it's in the vinyl tubing price range, but superior in every respect. It has extreme flexibility, rugged Teflon properties, temperature range (minus 450 to plus 550 deg. F.), ease of handling and light weight, qualifying it for service in electronic, missile, chemical and medical fields. Produced in standard color coding range, it comes in wall thicknesses from .005 to .010 in., AWG sizes 30 through 0. *W. S. Shamban & Co.*

... for more details, circle No. 202 on postcard



COARSE THREADS LEAD TO LOWER ASSEMBLY COSTS

- Fasteners with coarse threads assemble faster, easier

- Make a stronger joint, too

Big savings hide in small details . . . in the threads of bolts, nuts and cap screws, for example.

Coarse threaded fasteners tighten with only two-thirds the revolutions needed for fine threads . . . speeding assembly. Coarse threads enter nuts or mating holes with less tendency to cross thread when not truly positioned. Often this ease of starting is a decisive production advantage. Even in handling, there's an advantage. Coarse threads need less "babying" to avoid damage.

• More strength. With greater resistance to stripping, coarse threaded fasteners can be tightened more for a stronger assembly.

Yes, even with standard fasteners there are ways to save money and improve quality . . . by looking at your products through the eyes of an RB&W Fastener Man. His service is available just for the asking. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

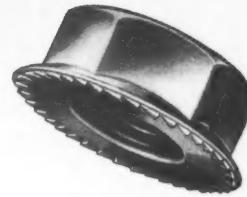


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RB&W FASTENERS—STRONG POINT OF ANY ASSEMBLY

... for more details, circle No. 71 on Reader Service Postcard



Spin-Lock Nuts dig in to stay tight

The photograph shows the many hardened "anchors" on the flange of a Spin-Lock Nut. These "ratchet-action" teeth require 20% more torque to loosen than to tighten. They bite in as the nut turns down on its seat. Like Spin-Lock Screws, these nuts can stay put in products subject to vibration and cyclic temperature variations. Send for bulletin.

High strength bolts save costly crane



At one company's plant, a large, heavy-duty crane had deteriorated due to rivets loosening. Replacing with new rivets was no permanent answer, but RB&W high tensile bolts were.

Used with hardened washers, these RB&W bolts clamp members together so tightly, no slipping into bearing takes place, holes are reinforced against fatigue, and connections become vibration-proof.

Assembling heavy duty equipment with RB&W high strength bolts in the first place can avoid such problems and create more satisfaction with the product.

TENSION

WHERE YOU NEED IT IN BOLTED ASSEMBLIES



RELIANCE HELICAL SPRING LOCK WASHERS

Wherever products are subject to movement, vibration, stresses and strains, positive steps can be taken to keep assemblies tight indefinitely. Constant tension must be maintained, and the one sure way to accomplish this is by the use of Reliance Spring Lock Washers. They not only retard "nut creep," but automatically compensate for bolt stretch, thread wear, expansion and contraction due to temperature changes.

Made of cold drawn spring steel in Reliance's own cold finishing mill, Reliance Spring Lock Washers are quality controlled throughout manufacture. They provide the reactive pressure over a wide reactive range to keep assemblies tighter longer. Write for Engineering Bulletin W-50 or request a visit from one of our fastening engineers.

EATON

RELIANCE DIVISION
MANUFACTURING COMPANY
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... for more details, circle No. 72 on Reader Service Postcard

92

PROTECTIVE OUTDOOR SPRAY ... for coating outdoor storage piles



Called Permaspray, this product is a colloidal suspension in water of a special chemical that forms a tough, flexible water-resistant film when exposed to air and hardened. It blankets and effectively protects outdoor storage piles of bulk materials such as coal, ores, sulphur, sand, paint pigments and waste against all types of weather conditions for up to a year or more. Easily sprayed, it has the appearance of a white, milky liquid, is applied without dilution and will set in 24 hr. under normal conditions. When the surface film is broken, as when coal is withdrawn from a stockpile, the area can be redressed and another coating applied. Permaspray comes ready for spraying in 55-gal. steel drums, applied at rate of one gal. to 100 sq. ft. of surface and is priced at 65 cents per gal., f.o.b. Philadelphia. *The Johnson-March Co.*

... for more details, circle No. 203 on postcard

*Create a Better
Product at Lower
Cost!*

**design for
copper
furnace brazing**



Superwelding is a superior process, allied to both welding and brazing, for permanently joining two or more ferrous metal parts in a special type of electrical furnace under a controlled atmosphere which prevents oxidation of the parts. Because of the strength of Superwelded joints, and the high production rates, we are today serving scores of manufacturers, helping them to produce better units at lower cost.

For further information call STanley 7-3121

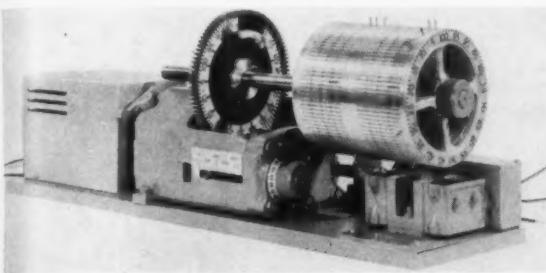


SUPERWELD CORP.
6840 Vineland Ave., No. Hollywood, Calif.

... for more details, circle No. 73 on Reader Service Postcard

WESTERN INDUSTRY — October 1957

ADJUSTABLE PROGRAM TIMER
... has unusual range, flexibility, adjustment



This timer for continuous, multi-stage circuit control is furnished for any time cycle up to 66 2/3 min., permits any number of intermediate switching events in one sec. increments, and recycles instantaneously without any time lag. Similar to the company's Programonitor, a counter that responds to mechanical or electrical inputs of variable speed, this device has, in place of the counting feature, a constant speed drive activated by a synchronous motor. This arrangement permits programming any recycling of complex switching patterns with respect to a time basis. When operated on a line having a controlled frequency of 60 cycles per sec., switching accuracy can be held within plus or minus 1/10 sec. Basic wiring is intended for single circuit control, but can be adapted to multi-circuit needs with suitable added components. The motor operates at synchronous speed, 60 rpm., rated 115 v., 60 cycles, single phase, continuous duty with normal ambient temperature range 40 to 120 deg. F. Counter & Control Corp.

... for more details, circle No. 204 on postcard

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for BETTER JOBS!**



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For outstanding performance in industrial, manufacturing and maintenance applications.

FEATURING:

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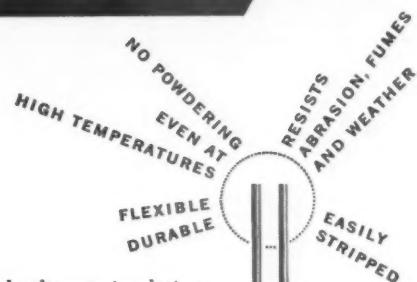
5350 EAST WASHINGTON BLVD.
LOS ANGELES 22, CALIFORNIA

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WESTERN INDUSTRY — October 1957



**New Thermocouple Wire
with BONDED STAPLE
FIBERGLAS INSULATION!**

GORDON SERV-RITE *exclusive*



This completely new insulation for thermocouple wire—of bonded staple Fiberglas yarn—has been developed to take full advantage of the natural properties of Fiberglas as a superior insulator.

Used for both extension wire and thermocouple wire, this Fiberglas insulation will not powder even under prolonged use at temperatures up to 1600°F, and can be used for single readings to 2000°F. Exclusive with Claud S. Gordon, this new insulation is suitable for a wide range of applications and is available on any Gordon SERV-RITE thermocouple or extension wire. It provides a tough, flexible insulation that resists abrasion, weathering and fumes, and can be color coded and easily stripped.

CATALOG SHEET AVAILABLE

Get complete data on Gordon SERV-RITE wire from Pacific Scientific's Western offices, and ask for bulletin 1200-1 on new Fiberglas insulation — there's no obligation!



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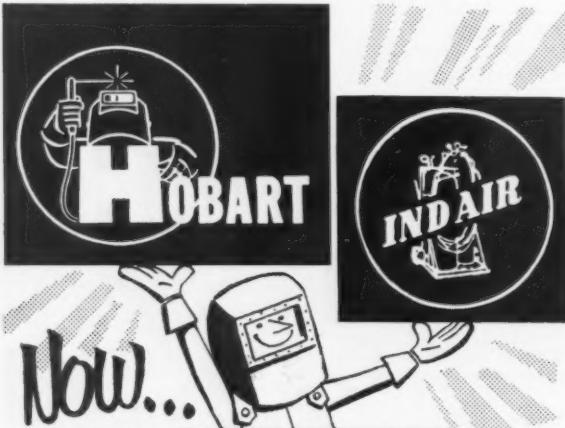
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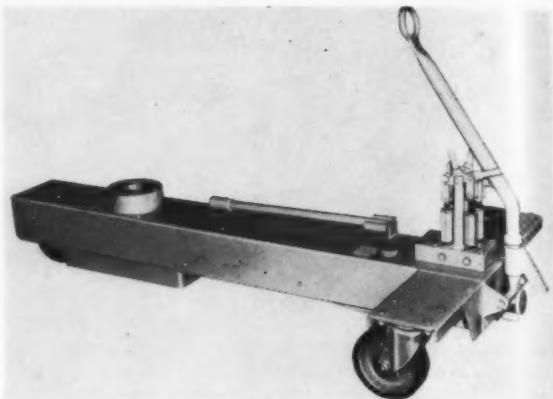
INDUSTRIAL AIR
PRODUCTS CO.

PORLAND
SEATTLE SPOKANE
MEDFORD YAKIMA
KENNEWICK

... for more details, circle No. 77 on Reader Service Postcard
94

AIRCRAFT AXLE JACK

... portable, hydraulic, lifts up to 50 tons



Currently in use on airplanes such as the B-47 Stratojet and the B-52 Stratofortress, this jack has double two-speed manually operated pumps mounted to the operating end of jack, and a hydraulic jack unit with rams and outer cylinder spring mounted to the load end. Lift consists of three rams and an extension screw encased within an outer cylinder integral with the base. To prevent overloading it has an automatic bypass safety valve operative only with loads over 55 tons. Overall height of the jack is 15.5 in., and fully extended under load, 41 in. including 5-in. screw extension. Operating force at rated load is about 75 lb. handle force, and hydraulic system fluid capacity, 5 gal. *Regent Jack Manufacturing Co.*

... for more details, circle No. 205 on postcard

ON THE SPOT HEAT to your exacting requirements!

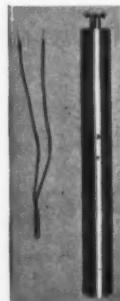


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HEATERS**

for Ovens, Dryers, Kettles, Process Equipment

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- No Grooves—No Heat Distortion
- Sealed End Construction

Available in a complete range of types and sizes, wattage requirements, and voltage conditions—for maximum safe surface temperatures of 750°F. and 1000°F!



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for Dies, Molds, Platens, Sealers, Defrosting

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- Silver Soldered End
- Opposite Terminals
- Moisture and Wax Resistant
- Nickel Chromium Heater Coil Sealed in Ceramic Insulation
- Brass Angle, Pigtail, Rod, or Stud Type Terminals

Standard sizes from $\frac{1}{8}$ " to $\frac{1}{2}$ " diameter, and $1\frac{1}{2}$ " to 22" in length, are supplied in a range of wattage requirements for 110 and 220 volt operation.

Discuss your spot heating requirements with a Trent representative.

Trent Representatives in
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In Canada: Supreme Power Supplies Limited, Toronto 4

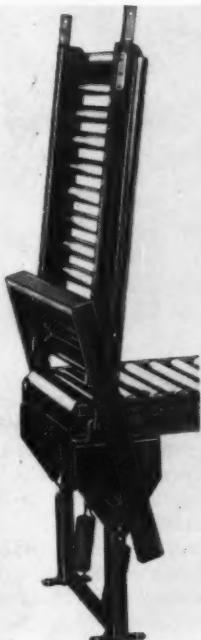
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WESTERN INDUSTRY — October 1957

CONVEYOR GATE

... operates with only 10-lb. lifting effort

Of particular advantage to the man who must operate a conveyor gate while carrying a load or pushing a loaded hand truck is this conveyor hinge section that operates with only 10 lb. of lifting effort. It incorporates a coil spring counterbalance which greatly reduces the required amount of lifting effort. Furnished in all widths of Rapistan wheel and roller type conveyors, the unit consists of a stationary section of conveyor with a three-foot wide gate. There is a special support at hinge point, and striker arms or hook connectors to secure free end of the gate to the adjoining conveyor section. It requires a 21-in. minimum clearance from floor to bottom of conveyor, supplied by the special supports that come in three adjustable sizes offering 21- to 51-in. clearance. *The Rapids-Standard Co., Inc.*

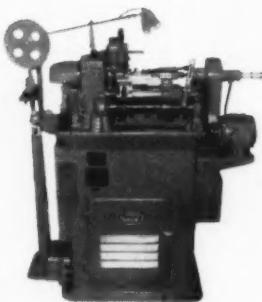
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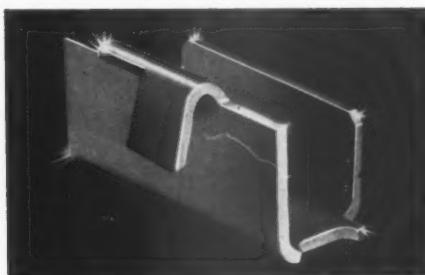
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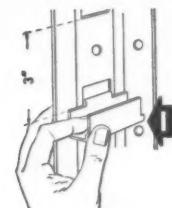
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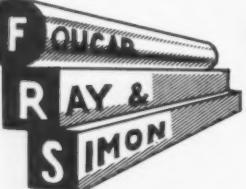
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4 1/2	x 1 1/4	2.000	6 1/2	x 2	2.500
4 1/2	x 1 7/8	.750	6 1/2	x 2 1/2	1.500
5	x 1 1/8	2.750	7	x 1 1/2	4.000
5	x 1 1/4	2.500	7	x 1 1/4	3.500
5 1/4	x 1 1/8	3.000	8	x 1 1/2	5.000
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26
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WHEEL TYPES: Drop Center, Lug Base, Disc, Demountable.

WHEEL DIAMETERS: 21", 20", 18", 17", 16", 15", 12", 10", 8", 6".

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Available with or without tires.
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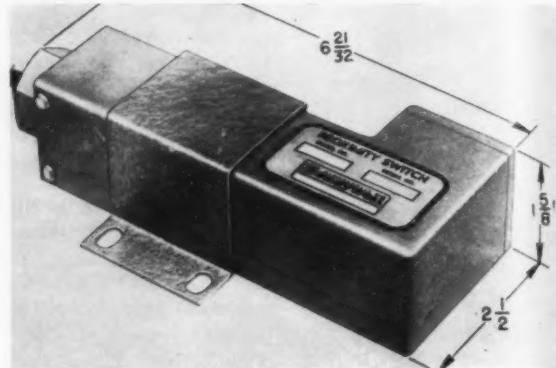
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Division of Garlinghouse Bros.
2415 E. Washington Blvd., Los Angeles 21, Calif.

for more details, circle No. 82 on Reader Service Postcard

PROXIMITY SWITCH

... detects ferro-magnetic objects without contact



Recently added to the firm's line of proximity switches is a unit that can be mounted on a surface that extends only 3 1/4 in. from the material that operates it. The line of proximity switches are precision static switches that have no moving parts and can detect a ferro-magnetic object when the object passes through a magnetic field set-up directly in front of the switch's sensing end. A signal flows through the switch's magnetic circuitry to operate a control relay remotely located in a control panel. Relay may be operated up to 10 times per sec. The new unit, 2FA1, has the entire switching element and sending unit potted and enclosed in heavy steel casing for positive operation even in damp, dusty locations or in presence of liquid coolants. Micro Switch Div., Minneapolis-Honeywell Regulator Co.

... for more details, circle No. 207 on postcard

CHOOSE THE HELMET MOST PREFERRED BY WESTERN WELDERS HUNTSMAN

GET FULL
HEAD
PROTECTION
100% of the
time



New Combination
Hard-Cap
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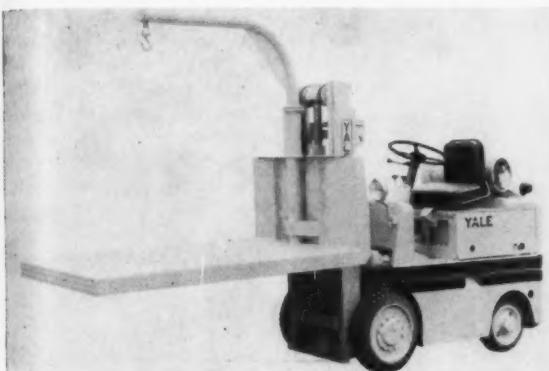
NOW with new **ROTO-CLIP**

permits you to detach or attach helmet
without removing Hard-Cap from your head.
ORDER TODAY!

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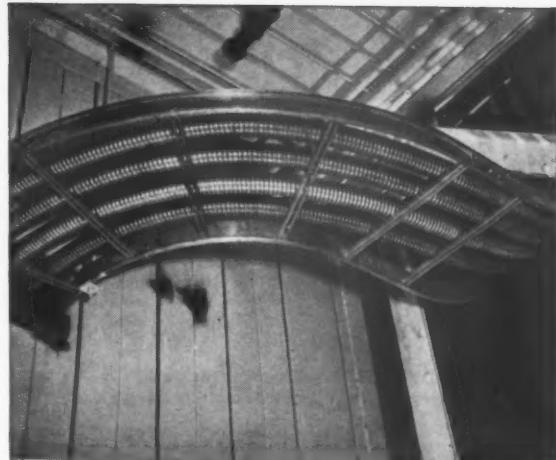
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PLATFORM-BOOM ATTACHMENT
... equips lift trucks for maintenance jobs



Overhead maintenance tasks that involve bulky or heavy pieces of plant equipment can be handled more easily with the use of this platform and boom attachment for lift trucks. Platform comprises 24 sq. ft. of working area, can be fitted with a removable safety guard rail. The attachment's removable boom, which has a hook to accommodate a hand or ratchet hoist, has a capacity of 300 lb., slews through 180 deg., and has a 48-in. outreach. Designed to lift directly onto a standard fork carriage, the attachment can be modified to be picked up on a pair of 48- or 60-in. forks so that the truck can serve both as a production tool and piece of maintenance equipment. *Yale Materials Handling Div., The Yale & Towne Mfg. Co.*

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ARMOR CABLE FOR QUICK NEW POWER

Need to expand or relocate power feeders? Anaconda Duralox* Interlocked-armor cable lets you put power where you want it—fast, economically. Made with its own tough, yet flexible armor, Duralox is installed without conduit. It is laid quickly—indoors or out—on light, easily installed racks, trained smoothly around corners, columns and other obstructions in long, uninterrupted runs. Metal armor affords high protection against damage. NEW BULLETIN DM 5608 contains full information. Write for free copy to: Anaconda Wire and Cable Company, 25 Broadway, New York 4, N. Y.

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We'll be glad to show you how modern communications can save time and dollars in your plant or factory. Let one of our specialists work out a plan to fit your particular needs. No obligation... just call your telephone business office.



Pacific Telephone

WESTERN INDUSTRY — October 1957



TELETYPEWRITER service sends written messages with phone-call speed. 2-way communication within a private network, or with thousands of TWX customers across the nation. You retain a written record.



SPECIAL TELEPHONES meet special needs. Here's one with encased switch and ringer for safety in explosive atmospheres. We have many different phones for different uses.



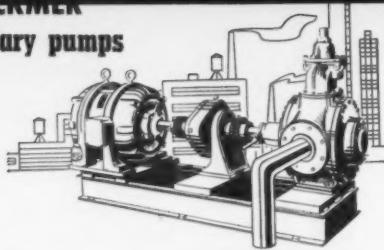
SPECIAL SIGNALS guard against lost calls. Signals you see... signals you hear. For indoors, outdoors. Loudest: an 18-inch double horn, above.

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97

BLACKMER

rotary pumps



- for sustained efficiency
- low maintenance

"SELF-ADJUSTING for WEAR" VANE CONSTRUCTION
assures sustained efficiency. Vanes can be replaced economically to restore "new pump" efficiency.

REPLACEABLE LINERS — Liner replacement is simple and eliminates the need for replacing the entire pump.

WIDE RANGE of APPLICATIONS — Blackmer Pumps are handling hundreds of liquids and semi-solids successfully. Power units for electric, gasoline, or diesel power, with capacities from 10 to 1500 GPM, for liquid pressures up to 125 psi, temperatures to 450° F.

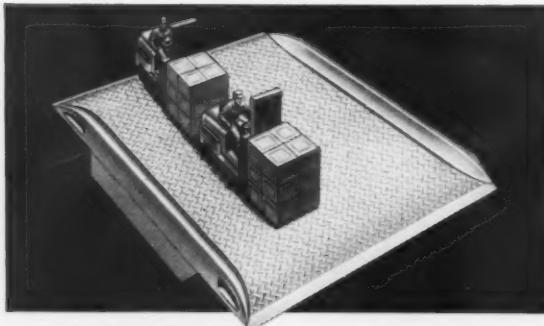


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AN EXTRA POWER TRUCK FOR THE PRICE OF A DOCK BOARD!

Make your power equipment produce more—back them up with Magliner magnesium dock boards!

Magliners rid your operation of bottlenecks, hazardous loading conditions . . . high costs! They speed dock traffic . . . give you faster loading cycles . . . promote safety and efficiency. As one customer aptly put it—"It's like getting the services of a second power truck *free* for the price of a Magliner magnesium dock board!"

Magliner dock boards are light . . . strong . . . safe! Made of magnesium for easy, one-man handling, rugged dependability and economical, long-life service. Custom-engineered to meet the specific requirements of your dock, equipment and operating conditions. Need an extra power truck? Check into Magliner magnesium dock boards today.

Write today for Bulletin DB-204

MAGLINE INC.

P. O. Box 610, Pinconning, Mich.



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Air Mac, Inc., 3838 4th Ave., South Seattle 4, Wash.; 313 N. Grandview, Yakima, Wash.; East 3710 Trent Ave., P. O. Box 1125, Spokane 10, Wash.; 1111 S. E. Grand, Portland 14, Ore.; 1003 Washington Blvd., Tacoma 2, Wash.; All Bearing Sales & Service Co., 602 Fulton St., Fresno, Calif.; W. T. Billard, Inc., 734 E. Third St., Los Angeles 13, Calif.; Equipment Supply Co., 16 Post Office Pl., Salt Lake City 1, Utah; E. D. Flourey, Co., 217 6th St., S. W. Albuquerque, N. M.; Homerslag Equipment, Inc., 110 Freeway Blvd., South San Francisco, Calif.; Kistler Industrial Services, 902 S. Central Ave., P. O. Box 1204, Phoenix, Ariz.; Plasti Equipment Co., 1400 Market, Denver 2, Colo.; Winn Supply Co., 256 7th Ave., P. O. Box 1709 San Diego 12, Calif.; Yale & Towne Mfg. Co., 6027 Whittier Blvd., Los Angeles 22, Calif.

... for more details, circle No. 87 on Reader Service Postcard

STAFOAM FOR SPRAY GUN COATING

... foams in place to make surface bond



Used for thermal, electrical and sound insulation; vibration dampening; for structural strength and similar applications are special Stafoam polyurethane formulations for use with catalyst spray gun equipment. Applied with spray gun to clean, wax- or oil-free surfaces, the 1900 series Stafoam will foam-in-place to any desired thickness between $\frac{1}{8}$ and 2 in., forming a surface bond that is stronger than the material itself. Available densities range between 2 and 20 lb. per cu. ft., either in rigid or semi-rigid forms and in non-spray formulations as well. At left you see a workman spraying a metal panel, using Devilbiss equipment with the new formula Stafoam. *American Latex Products Corp.*

... for more details, circle No. 209 on postcard

STEEL STRAPPING STRETCHER

... airpowered tool for tensioning



Air power does the hard work of tensioning strapping on crates, skids and coil stock in this sturdy, compact, light-weight tool. Made to tension $1\frac{1}{4}$ -in. heavy duty steel strapping with ease, it quickly provides up to 3,900 lb. of predetermined tension and virtually eliminates operator fatigue that sometimes is a cause of improper strapping. Air pressure can be set to give correct tension for any strapping operation. The tool features a handy cutter attachment and a rolling gripper for easy disengagement. *Signode Steel Strapping Co.*

... for more details, circle No. 210 on postcard

✓ check

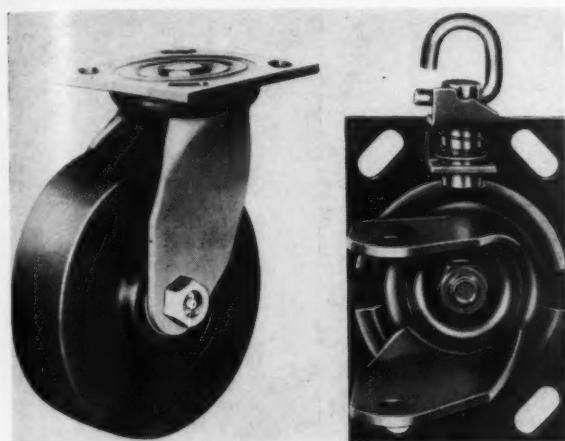
the many advantages of

SORBOST
CAST IRON
DAYTON FOUNDRY

Hollydale, Calif. • NEvada 6-1251

... for more details, circle No. 119 on Reader Service Postcard

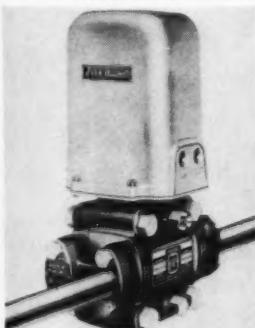
SEALED BEARING CASTERS
... with optional 4-position swivel lock



Available in two load capacity ranges—140 to 800 lb. and 590 to 1,500 lb.—these heavy duty seal bearing casters feature a four-position swivel lock as optional equipment. Both series come in rigid and swivel models, and the latter includes a positive acting lock to hold the swivel rigidly in any of four positions for temporary conversion into a rigid caster. The four slots are on a swivel race collar that is easily disengaged by pulling out the full ring and rotating plunger to a notched seat on the retainer. Neoprene seals protect swivel and wheel bearings from water, dirt, detergents and other harmful materials, making the casters particularly useful in food processing, chemical plants, and installations where rust may occur. Lip seal construction permits complete purging of bearings under normal pressure and methods. *The Colson Corp.*

... for more details, circle No. 211 on postcard

FLOW MEASUREMENT DEVICE
... measures small flows of liquids, gases

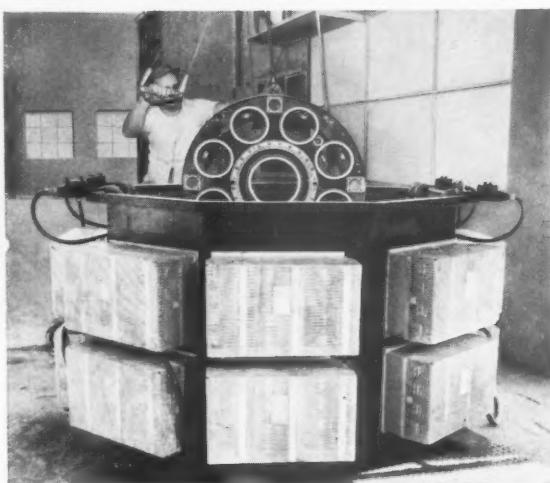


Small flows, ranging from 0.003 to 0.010 gpm. of clean water and similar liquids and from 0.010 to 0.040 scfm. of air and other gases can be measured and transmitted by this integral orifice cell transmitter that was developed for research and pilot plant needs and for process operations such as rationing small flows. Similar to the firm's force balance Type 13A transmitter, this one has a manifold with removable orifice through which measured fluid flows. Resulting pressures are applied to high and low pressure sides of a silicone-filled twin diaphragm capsule and the resulting differential, balanced by a pneumatic feedback mechanism, produces a 3-15 psi. output signal that is proportional to differential pressure for remote indication or recording. Orifices come in six bore sizes from .020 to 0.250 in., and can be changed for new flow ranges; manifold removal permits change of orifice for new flow range. The transmitter needs no separate primary device or meter leads, range is adjustable between 0.20 and 0.250 in. of water. Maximum working pressure is 1,500 psi., temperature, 250 deg. F. *The Foxboro Co.*

... for more details, circle No. 212 on postcard

WESTERN INDUSTRY — October 1957

**BENDIX-PACIFIC
MODULAR DESIGN
SONIC TRANSDUCERS
for FULL-SCALE cleaning**



**ADAPTABLE TO CONVEYORIZED OR STATIC
PRODUCTION CLEANING APPLICATIONS**



Sonic cleaning has "come of age". Already proven in industrial and military applications, Bendix - Pacific modular design sonic transducers offer maximum flexibility to meet any production requirement.

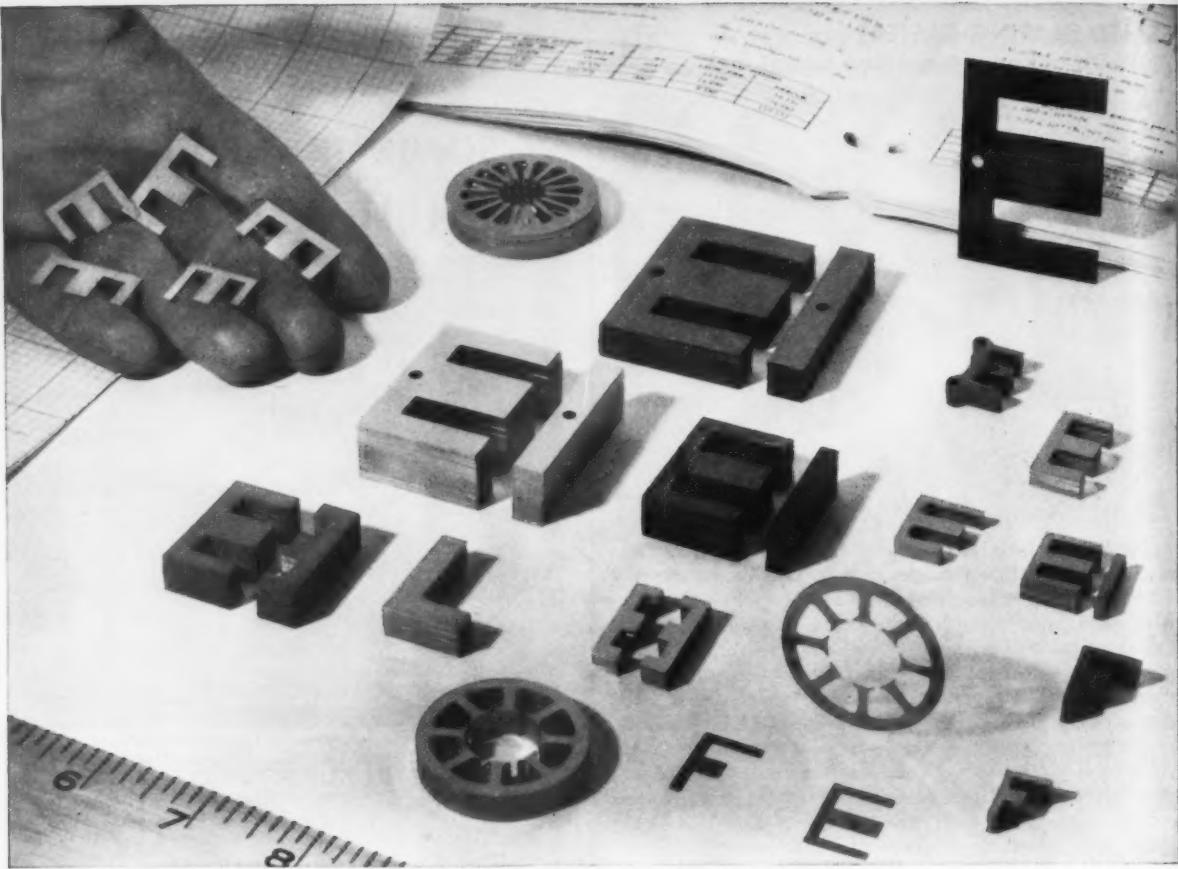
The installation shown is a 5' diameter, 500 gallon tank . . . powered by a 50 KW motor generator. Used for all-purpose cleaning of Air Force jet engines, parts ranging from the smallest pump components to the largest structural members are thoroughly cleaned . . . in minutes!

BENDIX-PACIFIC SONIC EQUIPMENT . . . A NEW TOOL FOR INDUSTRY

- Materials can be thoroughly cleaned of even the hardest contaminants in mild, cheap nonhazardous solutions
- Bendix-Pacific sonic equipment may be adapted to existing tanks to accommodate any size or shape of material
- Standard motor generators furnish unlimited power with minimum maintenance . . . and maximum economy
- A system can be provided to meet your exact requirements
- For further information, contact the Industrial Sonic Equipment Department:



... for more details, circle No. 88 on Reader Service Postcard



How to be sure of TOP QUALITY Nickel-Iron Laminations for high performance motor and transformer applications

The easiest way is to specify Repath laminations. *Why?* Because their manufacture is quality controlled from start to finish.

Take annealing for example. This operation is most important because it develops the ultimate permeability of the lamination. Repath laminations are hydrogen annealed in modern globar heated Inconel retort furnaces. Very dry (-40° F dewpoint and lower) hydrogen is used to insure clean lamination surfaces and to remove impurities from the steel for better performance and higher magnetic properties. Electronic cam-type program controllers control the entire annealing cycle during heating, soak-

ing and cooling. Following annealing, all Repath laminations are tested for permeability and core loss by permeameters in the laboratory prior to packaging and shipping.

This emphasis upon modern, well-maintained equipment, plus the experience, care and skill which is applied to each customer's requirements, is your assurance of uniformity and dependability in finished laminations.

Inquire about Repath's line of standard nickel-iron laminations for high frequency applications where high permeability and very low core loss are the requirement. They are available in a wide variety of standard shapes and sizes.



WRITE FOR THE REPATH CATALOG

Contains complete information and specifications on Repath's standard nickel-iron and silicon laminations—also stamped metal components for electronics.

ADDRESS
DEPT. WI-710R



REPATH PACIFIC DIVISION
641 EAST 61st STREET, LOS ANGELES, CALIFORNIA

THE ARNOLD ENGINEERING COMPANY
MAIN OFFICE & PLANT: MARENGO, ILLINOIS

Los Angeles District Sales Office: 3450 Wilshire Blvd.

... for more details, circle No. 89 on Reader Service Postcard
WESTERN INDUSTRY — October 1957



plants • production • distribution • personnel

Stanford Research Forms Largest Western Metal Lab

MENLO PARK, CALIF.—Stanford Research Institute has expanded present research facilities into the largest metallurgical laboratory in the West.

R. H. Thielemann heads the staff of 17 metallurgists and technicians in the metallurgy department.

New testing facilities include tensile and creep-rupture equipment. Process equipment includes a vacuum induction and a consumable electrode cold mold melting furnace.

Easterday Supply Opens Fifteenth Western Office

SAN DIEGO—The Easterday Supply Co. has opened its 15th Western office at 621 Fourth Ave.

Allen Fromlath will direct the San Diego office. He was formerly attached to the Los Angeles Easterday sales department.

Easterday is one of the country's largest distributors of janitorial and sanitary supplies enjoying a \$2,000,000 sales volume in Southern California alone last year.

Standard Oil Company Buys Hawaiian Site for Refinery

SAN FRANCISCO—A \$40,000,000 refinery near Honolulu is planned by Standard Oil Company of California, Western Operations, Inc., following negotiations to acquire 310 acres of land in the Barber's Point industrial area.

A conditional agreement for the land was recently announced jointly by Standard Oil and by the James H. Campbell Estate of Honolulu.

Approximately 35,000 barrels are expected to be processed daily when the new refinery is in operation. An estimated 225 persons will be employed.

Plans call for building a submarine pipe line that will run out 10,000 ft. from shore to a 60-ft. depth, to permit loading of large tankers.

Link-Belt to Double Space in Move to New L.A. Plant

LOS ANGELES—Link-Belt Co. is doubling its manufacturing facilities here in a move to its new 90,000-sq. ft. plant at 1200 Sycamore St., Montebello, about 10 miles east of downtown.

The move will include the office, engineering department, district sales office and factory branch store. Production facilities are also being moved and are expected to be completed by November 15.

The plant is about 250 x 300 ft. overall and office 100 x 140 ft. on a 25-acre tract. It includes truck docks and a railroad siding connecting with Santa Fe railroad.

Robert G. Christiansen, southern general manager of Link-Belt's Pacific Divisions, commented on the new move:

Lumber Exchange Formed in Portland

PORTLAND, ORE.—A National Lumber Exchange, patterned after similar commodity exchanges such as those for grain and cotton, has been formed here. Headquartered in Terminal Sales Building, the exchange has installed a Univac costing \$500,000. Lumbermen hold hopes that the exchange would have far-reaching effects by bringing seller and buyer together in a single market place.

Standard to Build Washington Refinery

MULKITEO, WASH.—Standard Oil of California will build a 60,000-bbl./day refinery here. The refinery will be built on a 2,000-acre site about 20 miles north of Seattle. Initial principal products will be gasoline, kerosene, heating oil, and fuel oils.

"Link-Belt has been represented in Los Angeles since 1913. With the augmented facilities of its new Los Angeles plant the company will be able to meet the constantly increasing needs of industry in Southern California, southern Nevada and all of Arizona for conveying and elevating equipment and the design of complete materials handling and processing systems."

Washington Surveys Pulpwood Potential Throughout State

SEATTLE—A complete survey of Washington's pulpwood potential, initiated by the Institute of Forest Products, is progressing rapidly throughout the state under the direction of Dr. Harvey D. Erickson.

Dr. Erickson, who teaches wood products at the College of Forestry, University of Washington, is consulting with each pulp and paper firm in the state regarding the present use of pulpwood and changes which will probably take place in the near future.

The objective of the study is to compare the state's pulpwood potential with the present and future trends of industry. Dr. Erickson's findings will be published in detail by the Institute of Forest Products.

Jorgensen Steel Expands Facilities

LOS ANGELES—The Earle M. Jorgensen Co. has extended the capacity of its slitting division here by 20%.

New equipment has been added and with five slitting lines, Jorgensen claims the most complete slitting service in the 11 Western states. Processing is performed on coils of steel, aluminum and other metals, either from Jorgensen stocks, or customer's own material.

Garrett Corporation Opens Pneumatic Controls Facility



PHOENIX, ARIZ.—The Garrett Corporation's new AiResearch pneumatic controls facility opened recently and full production is now under way.

The newly completed building houses 40,000 sq. ft. of work area on an eight-acre tract with office space occupying 24,000 ft. and 16,000 ft. for assembly. The entire building is refrigerated.

Close to 500 employees are at work in the new center designing, producing and testing precision controls for air, liquids and gases for commercial and military aircraft as well as missiles and rockets.

Fairbanks Names New Mexico Rep

NEW YORK, N. Y.—The Fairbanks Co. has appointed Frank Hockett Co. of Mesa, Arizona, as its sales representative in the State of New Mexico.

The Frank Hockett Co. will sell Fairbanks' complete line of bronze and iron body valves, dart unions, casters, hand trucks and wheels.

Electrical Supply Firm Opens in Pomona

POMONA, CALIF.—The Electric Corporation in Los Angeles has opened an electrical distribution warehouse at 695 East First Street, corner of Eleanor.

This expansion commemorates the Golden Anniversary of the firm.

Fibreboard Moves West

SAN FRANCISCO—Fibreboard Paper Products Co. is moving its machinery from the Metuchen, N. J., plant (which has been closed down) to its larger plant in Emeryville, Calif. The Emeryville unit manufactures a wider range of floor covering products.

Arro Expansion Bolt Expands Office, Adds Western Sales Reps

MARION, OHIO—Arro Expansion Bolt Co. has moved into a new office addition and has added a Western sales representative, announced George A. Flora, president.

The 1,500-sq. ft. office addition meets the need of expanded personnel and provides increased storage for records, literature and supplies. It is the seventh addition to the original 2,400-sq. ft. structure occupied in 1940. The company now has 9,000 sq. ft. of office space and 22,000 sq. ft. of manufacturing and warehouse area.

Also, Arro Expansion Bolt Co. announces the appointment of the Eric F. Chemnitz Co. as sales representative in Northern California, Nevada and Arizona. Mr. Chemnitz and associates will supervise Arro's San Francisco warehouse operation.

Industrial Air Adds Hobart Line in Northwest

PORLAND—The Industrial Air Products Co. has been appointed Northwest distributor of the Hobart line of welding machines and electrodes, announced Gilbert Schnitzer, president.

The Hobart company manufactures electric welding machines and electrodes. Large stocks are now available and will be maintained at all times at each of the Industrial Air Products company branches for complete customer service.

Industrial Air, headquartered in Portland, maintains Western branch offices in Seattle, Spokane, Yakima, Kennewick, Pendleton and Medford.

U. S. Steel Appoints Stainless Products Rep.

LOS ANGELES—Eureka Metals Supply Co., 551 Macy St., has been appointed a distributor of the full line of United States Steel stainless products.

Products include sheet, plate, strip, rod, bar and wire in the Southern California and Arizona area.

Stuart Co. Breaks Ground

SOUTH SAN FRANCISCO—Groundbreaking ceremonies for a \$750,000 plant for the Stuart Co. were held in South San Francisco industrial park.

The new plant will consolidate the manufacturing firm's activities in the single building on a four-acre parcel at the corner of Airport Blvd. and Utah Ave. The facility will contain over 85,000 sq. ft.

LINE PIPE "U"-ING PRESS FOR WELLAND TUBES LTD.

DESIGNED AND
FABRICATED BY

Kaiser Steel

Fabricating Division

NAPA, FONTANA, MONTEBELLO, CALIF.

Built to serve the growing West... through precision steel fabrication

With single strokes of twin hydraulic pistons, this powerful press forms steel plate into a giant "U" shape 40 feet long. It's part of a recently completed two-million dollar installation of large diameter pipemaking equipment at Welland, Ontario, Canada. The Steel Company of Canada and Page-Hersey Tubes Ltd. (co-owners of the new mill) awarded the project to the Napa Fabricating Division of Kaiser Steel in recognition of the excellent performance of the plant's self-designed machinery in its own line pipe production. For further information, write Kaiser Steel Corporation, Fabricating Division, Napa, California.



STATISTICS:

LENGTH - 41' 9"

WIDTH - 18' 6"

HEIGHT -

8' 9" BELOW CONVEYOR
14' ABOVE CONVEYOR

WEIGHT - 106 TONS

... for more details, circle No. 90 on Reader Service Postcard

Yale & Towne Adds Replacement Parts Depot

SAN LEANDRO, CALIF.—A major industrial lift truck replacement parts depot has been established at the Yale Materials Handling Division, The Yale & Towne Manufacturing Co.

The depot will supply parts to maintain the levels of inventories kept by Yale representatives and branches in the 11 Western states and the two western provinces of Canada. All parts for these outlets, previously ordered from the main Yale materials handling plant in Philadelphia, will now be distributed from San Leandro.

The latest mechanical order writing procedures will be used in the Yale parts depot. The system provides for automatic handling of order and invoice writing, and inventory control through the use of pre-punched and pre-verified electronic business machine cards.

Videl to Sell Storage Racks

LOS ANGELES—The Videl Company, 7260 Melrose Ave., has been appointed sales representative in Southern California for Storage Products Corp. adjustable storage racks. F. A. von Baum is president of Videl.

American MonoRail Locates in New Compton Facility



COMPTON, CALIF.—Pictured above is the new plant at 2310 N. Alameda St. occupied recently by the American MonoRail Company, with headquarters in Cleveland, Ohio. Western Division manager is L. P. Helbert.

In this plant, the American MonoRail Co. is fabricating cranes and monorail systems for the following dealers and agents in the West: F. T. Crowe & Co., Seattle; Grover Engineers, San Francisco; Kistler Industrial Service, Phoenix; Modern Equipment Co., Salt Lake City; McMahon Bros., Portland.

An engineering staff is maintained in Los Angeles and engineering services

are available for free consultation on overhead handling problems.

In addition, American MonoRail Western Division is the exclusive distributor of Robbins & Myers hoists. Komer Verinder is hoist manager, supervising the sale and distribution of Robbins & Myers hoists.

Lockheed Spends \$500,000 on Ontario Growth

ONTARIO, CALIF.—Lockheed Aircraft Service, Inc., has spent nearly \$500,000 to improve facilities here.

The company has completed an engine build-up shop and warehouse, new blast fences and remodeled existing buildings. The buildings were in part of the former Northrop area leased by LAS.

Recently LAS leased a large warehouse, containing 42,860 sq. ft. on Arrow Ave. in Monte Vista, near Ontario.

General Plating Corp.

PORTLAND—The General Plating Corp. recently began operations at 8540-80 N.E. Sandy Blvd. The firm engages in industrial chrome plating.

An advertisement for Cullman Power Transmission. The top half features a large, stylized "FREE" in a bold, blocky font. To the right of the "FREE" is a circular graphic containing several interlocking gears and sprockets. The text "for Chain Drive users" is written in a script font above the graphic. Below the "FREE" text, the word "Cullman" is written in a bold, sans-serif font. Underneath "Cullman" is the text "POWER TRANSMISSION ROLLER CHAINS AND SPROCKETS". At the bottom of the ad, there is a list of benefits: "here's the answer to better low-cost power transmission... Write today for the first really Engineered approach to the problem of supplying custom sprockets 'off-the-shelf'...". There is also a diagram showing a shaft with a bushing and a sprocket, with the text "your shaft size + bushing + sprocket = Grip-Master stock delivery". The bottom right corner of the ad contains the text "REPRESENTATIVE IN ALL PRINCIPAL CITIES" and "CULLMAN WHEEL COMPANY, 1337 ALTGOLD STREET, CHICAGO 14, ILLINOIS".

... for more details, circle No. 91 on Reader Service Postcard

LUFKIN



TAPES

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HOWARD
SUPPLY
COMPANY

... for more details, circle No. 92
WESTERN INDUSTRY — October 1957

Stromberg-Carlson Adds to Main Plant

SAN DIEGO—A 13,000-sq. ft. engineering building is under construction by Stromberg-Carlson at its main plant here.

The new building will increase space at the main plant by 50% and will bring the total plant, office and laboratory space of the division to 52,700 sq. ft.

Specification Packaging Forms New Division

NORTH HOLLYWOOD, CALIF.—Specification Packaging Engineering Corp. has formed a new commercial packaging division offering complete industrial, commercial and consumer service.

Operation will include packaging of point-of-sale and custom unit-of-use items; the assembly of multiple items into unit, intermediate or exterior containers; visual packs; and collating of food items and industrial manufacturers. *Merle Wainwright* has been named manager of the new division.

Stanford Professor Wins Electronic Award

SAN FRANCISCO—The 1957 Electronic Achievement Award of the Western region, Institute of Radio Engineers, was presented to Dr. Dean Allen Watkins, professor of electrical engineering, at Stanford University.

Dr. Watkins won the award for his basic contributions in reducing noise in microwave electron tubes.

Brewery Spends \$1,000,000 In Expansion Program

PORTLAND—A five-story high beer fermentation cellar will be constructed for Blitz Weinhard Co. at a cost of \$1,000,000.

Another step in the firm's plant development program, the cellar will rise on property owned by the company at N.W. 11th Ave. and Couch St.

Yale



Padlocks

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SUPPLY
COMPANY

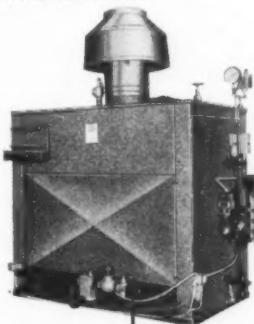
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WESTERN INDUSTRY — October 1957

There's a PARKER Product FOR EVERY STEAM AND HOT WATER REQUIREMENT

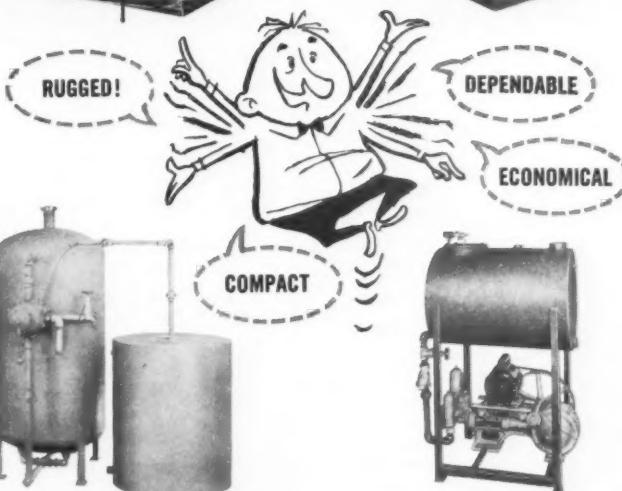
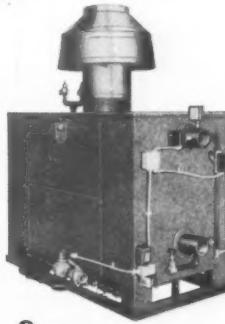
PARKER INDUSTRIAL STEAM BOILERS

Easy to operate and maintain. Fully automatic, equipped with only the finest controls sold and serviced throughout the world. Delivered completely assembled—easy to install. Easily cleaned and completely accessible.



PARKER INDUSTRIAL HOT WATER BOILERS

Incorporates all of the quality materials and construction features that have made Parker products famous throughout the world. Fully automatic, simple to maintain, delivering hot water at the lowest possible cost to you.



PARKER INDUSTRIAL WATER SOFTENERS

Softens water the most economical and simplest way. Low initial cost—durably constructed for longer life. Engineered for proper distribution and efficient back-wash to cut water and salt consumption to a minimum. Equipped with the best solo valve for reliable and easy operation.

MAIL THIS REPLY CARD—TODAY

Please send me latest information and bulletin on
 Parker Boilers Parker Hot Water Boilers
 Parker Water Softeners Parker Return Systems
 and the name of the nearest distributor.

Name _____

Address _____

City _____ State _____

PARKER AUTOMATIC RETURN SYSTEMS

The Parker Packaged Return System provides fully automatic and reliable operation for boiler feed and condensate storage. Overhead system is compact, fully assembled for easy installation. Heavy duty piston or turbine pump—heavy steel tanks with automatic float valve. Durably built for longer life.

SID E.

PARKER
BOILER

MANUFACTURING COMPANY

2035 East Thirty-Seventh St.
Los Angeles 58, California
ADams 3-4211

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CLEAN OUT MINE CARS FAST...

with a
Cleveland Vibrator

Wet or sticky materials are no problem when you use a Cleveland Portable Vibrator to empty your mine cars.

Fast punching Cleveland's break stubborn materials loose in a hurry. Production moves along with no hold-ups. It's strictly a one-man operation.

Vibrator is equipped with a male Vee bracket. Female brackets available for attachment to cars. Write for complete details and prices.

Air or Electric

Portable or Permanent

Silent or Standard



2914 Clinton Avenue • Cleveland 13, Ohio
7 Front St. • San Francisco 11, California

... for more details, circle No. 95

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National Vulcanized Fibre Starts Up Western Plant

LOS ANGELES—National Vulcanized Fibre Co. has begun operations in a new fabricating plant to serve the 11 Western states.

Equipped to fabricate all National plastics, including laminates, nylon and vulcanized fibre, the new facility will increase the company's overall fabricating capacity by more than 10%.

John Macadam, who has held several manufacturing and engineering supervisory positions during his 20 years with the company, has been named superintendent and engineering consultant at the Western plant.

New Transfer Service Opens in Phoenix

PHOENIX, ARIZ.—A new common motor carrier operation has been established here, known as the Thunderbird Transfer & Storage Co., Inc., of 510 W. Jackson St.

The firm will specialize in local cartage and transfer service, rail and truck freight distribution, local and long distance household moving, commercial warehousing and general trucking. Fred R. Hurley is president of the firm.



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Northrop Creates Nortronics Division

HAWTHORNE, CALIF.—Northrop Aircraft, Inc., has created a new division, to be called Nortronics, which will handle the company's growing activity in the design, development and manufacture of electronic, electro-mechanical and optomechanical products and components.

Dr. William F. Ballhaus has been named general manager of the new division. Dr. Ballhaus formerly was vice president and chief engineer of the Northrop Division.

Universal Harvester Increases Facilities

STOCKTON, CALIF.—The Universal Harvester Co. has leased an additional 10,000 sq. ft. adjoining the present 20,000-sq. ft. plant located at 418 South Aurora St.

The additional space is needed for increased production demanded by the development of a new product, a variable speed drive for agricultural machinery and industrial use.

Massey-Harris Ferguson

STOCKTON, CALIF.—An adjoining 10,000-sq. ft. building has been leased by Massey-Harris-Ferguson at 314 South Aurora St., to take care of increasing warehouse area.

130-Acre Industrial Park Launched in Sacramento

SACRAMENTO—The Johnston Industrial Park, a 130-acre site, has been opened on property south of the North Sacramento Freeway at Canterbury Road.

Coldwell, Banker & Co. is exclusive agent for the industrial park while the North Sacramento Land Co. will construct building to specifications.

Lynn Manufacturing Facility

SAN CARLOS, CALIF.—Lynn Engineering Co., San Francisco, has built a new 6,000-sq. ft. manufacturing facility here. The new plant will manufacture the newly-developed Lynnco air curtain blast fence, used in the aircraft industry.

R.F. Goodrich
Koroseal
R.F. Goodrich
ELECTRICAL TAPE
IN STOCK AT
HOWARD
SUPPLY
COMPANY

... for more details, circle No. 97
WESTERN INDUSTRY — October 1957

Pacific Clay Acquires Tillotson Refractories

LOS ANGELES—Pacific Clay Products has acquired the total assets of Tillotson Refractories Co. of Corona, Calif.

The newly purchased firm mines, produces and delivers four-, six- and eight-inch vitrified clay pipe. The company occupies a 150,000-sq. ft. plant and employs 100 persons.

Carpenter Steel Branch

SEATTLE—The Carpenter Steel Co. has opened a new mill-branch office in Seattle to meet increasing demands for specialty tool, alloy and stainless steels in the Pacific Northwest. The office is located in Room 3318 of the White Henry Stuart Bldg. M. J. Brown will be in charge of the new office.

Moore-Horkey Announce Merger

TORRANCE, CALIF.—Horkey Associates, Los Angeles engineering firm, and Moore Development Corp., have merged. The new firm, to be known as Horkey-Moore Associates, will have administrative and engineering offices at 24751 S. Crenshaw Blvd. and manufacturing and testing facilities at 24660 S. Crenshaw Blvd.

Horkey-Moore Associates will have facilities for engineering, research, design, development, prototype fabrication and testing for aircraft manufacturers. E. J. Horkey is president of the new firm and Joseph H. Moore is vice president—manufacturing and test. John N. Kerr is vice president—engineering.

Coleman Engineering Plant

TORRANCE, CALIF.—Coleman Engineering Co. will construct a \$700,000 new plant. The 50,000-sq. ft. manufacturing and office building will be completed by the end of this year. The new facility replaces present quarters in Culver City, Calif.

Tape



Rules

IN STOCK AT

HOWARD

SUPPLY

COMPANY

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WESTERN INDUSTRY — October 1957



A SELECTION OF

Cargo Carriers

SPECIAL TRUCKS are designed and built by Colson to your specifications. Phone or write for engineering assistance.

COLSON
CASTERS • WHEELS • HAND TRUCKS

COLSON EQUIPMENT & SUPPLY CO.

LOS ANGELES 13 1317 Willow Street • Trinity 5743
OAKLAND 7 350 Tenth Street • TEMPLEBAR 2-3556
SAN FRANCISCO 5 20 Beale Street • GARFIELD 1-0280



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107

THIS NEW
FREE
HANDBOOK
GIVES
THE
FACTS

about
DARNELL
CASTERS AND WHEELS

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Quick grease-gun lubrication provides easy maintenance.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

Consult the Yellow Pages
under "Casters"

DARNELL CORPORATION, LTD.

DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
80 WALTER STREET, NEW YORK 12, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

... for more details, circle No. 100

Western Packing and M-H Show to be Held in San Francisco

SAN FRANCISCO—The Seventh Western Packaging and Materials Handling Exposition will be held here on August 11-13, 1958, announced Clapp & Poliak, the show's management.

Comment by the Exposition's Board of Sponsors which is composed of top executives of the large packaging and materials handling firms in the Western states, as well as some of the national firms, indicates the "seventh" will be a lucky number so far as being timed to the industry's needs is concerned.

This is due to the heavy selling competition which has followed closely in the wake of the unprecedented industrial expansion and shift to the West Coast during the past ten years.

It was crystallized by one who heads a large packaging machinery firm, who said, "The show comes to us at just the right time. There's plenty of business out West, but it will not sell itself. When this show comes we will be in excellent

position on inventory, and will have a number of brand new developments in our products ready for marketing. Buyers from all parts of the West find it easy to come to San Francisco."

Litton Contracts for \$1,000,000 Plant

SALT LAKE CITY—A total of \$1,000,000 will be spent by Litton Industries, Inc., for its projected electron tube manufacturing plant.

The first unit will be ready for operations on Feb. 1, 1958. Two hundred employees will constitute the initial working force.

Keuffel & Esser Build New Facility

SAN FRANCISCO—New headquarters have been occupied by Keuffel & Esser Co., engineering supply firm, at 23rd and Folsom Streets.

The new building contains 21,500 sq. ft. and will be used for offices, display rooms and warehousing.

MOTOR MICA
TRADE MARK REG. U. S. PAT. OFF.

ANTI-FRICTION COMPOUND

In White Powdered Form

Puts Muscles In Your Lubricants



Solves Toughest Lubrication Problem



Works wonders when used with cutting oils. Simplifies deep drawing, metal stamping, milling, punch press work, etc. Prolongs life of dies. Eliminates sticking. Makes things operate smoother. Reduces friction and wear.

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Kennedy



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... for more details, circle No. 102

Electromet Celebrates 15th Anniversary

NORTH PORTLAND, ORE.—The 15th anniversary of Electro Metallurgical Co. was observed recently with an open house on September 19-21.

Electromet, the nation's largest producer of calcium carbide and ferro-alloys, began operations on July 1, 1942. From its original lone furnace it has grown to a four-furnace capacity with over 300 employees.

MacDermid Inc. Opens Western Division

TORRANCE, CALIF.—MacDermid Incorporated, Waterbury, Conn., and Detroit, Mich., manufacturer of metal cleaning, plating and finishing chemicals, recently opened a Western division at 18802 Fonthill.

Complete manufacturing, warehousing, sales and service facilities are now in operation. The new division is headed by Claude E. Weekly.

Three Electronic Firms Merge; Two-Plant Operation

NORTH HOLLYWOOD, CALIF.—The National-El Ray Co. has been formed to manufacture electrical and electronic components. The firm is an outgrowth of the merger of El Ray Motor Co., Valeo Engineering Co., and National Electronics Corp.

Two plants located at 11747 and 11845 Voss St. have been renovated and are producing for the new combine.

John N. Valianos is president of the new firm and Lee Valianos is executive vice president.

Goodyear Tire & Rubber Leases Tire Retread Plant

SACRAMENTO, CALIF.—The Goodyear Tire & Rubber Co. will lease a 30,000-sq. ft. building now under construction

* for a tire retread plant.

The two-acre site is in a new industrial park south of the North Sacramento Freeway and Canterbury Road. The new plant will have an initial employment of about 45.

Gardner-Denver Buys 30 Acres

DERBY, COLO.—Gardner-Denver Co. has purchased 30 acres of land near here to build a plant to house the division's forging facilities.

In addition to purchasing new equipment, the forging equipment now located at Gardner-Denver's present plant will be moved to the new location to allow for expansion of facilities at 39th Ave. and Williams St. in Denver.

Pacific Metals Open House

SAN FRANCISCO—The Pacific Metals Company, Ltd., held an open house and welding clinic from October 15-17 at its new office and warehouse at 1900 Third Street. Pacific Metals is a distributor of non-ferrous and ferrous alloys in all forms.

Essential tools of the modern Tuna Canning Industry...

include high-speed can-packing machines that make possible

Los Angeles County's current annual tuna pack of about four hundred and eighty million cans.



ESSENTIAL TOOL OF ALL INDUSTRY

...modern banking services

Such are the facilities of California Bank, the industrial business-minded bank serving the Industrial Center of the West.

California Bank

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Los Angeles

...for more details, circle No. 103 on Reader Service Postcard

Bethlehem Plants Win Awards in Safety Contest

SAN FRANCISCO—Two Bethlehem Pacific plants in the Bay Area have won awards in the National Safety Council Annual Metals Safety Contest.

Tied for first place with other contestants in their respective groups, none

Prentiss
Vises
IN STOCK AT
HOWARD
SUPPLY
CO
M P A N Y
...for more details, circle No. 104

of which had a disabling injury during the 12 months of the contest, was the South San Francisco transmission tower fabricating department.

In addition, the company's Alameda structural steel fabricating works was awarded a certificate of achievement for having a frequency rate below the group average.

Clingen & Fortier Changes Name

LOS ANGELES—Clingen & Fortier, Inc., an affiliate of Reynolds Metals Co. and one of the West's major distributors of Reynolds aluminum mill and building products, has changed its name to the Reynolds Aluminum Supply Co.

Alfred Fortier, president, said the change in no way affects the firm's policies, operating procedures, or personnel. He added that the company would continue to serve as an important distributor for brass and copper, also for carbon and stainless steel.

Mine & Smelter Supply Opens New Facilities

DENVER, COLO.—Mine & Smelter Supply Co., a pioneer manufacturing and distribution firm, has opened its Denver branch in a new \$1,000,000 facility at 3800 Race St.

Included in the move are stocks, warehouse, manufacturing shops, Marcy Mill, Colorado Iron Works divisions and general offices.

Bay State Abrasive Plans Western Plant Near Santa Cruz

SANTA CRUZ, CALIF.—Fifteen acres of land have been purchased by the Bay State Abrasive Products Co. in the Keith Shaffer Industrial Park in the Opal Cliffs-Capitola sector of Santa Cruz county.

The company plans to build a manufacturing plant and warehouse at this location. Construction date has not been announced.

This is the latest step in the company's \$2,000,000 expansion program announced a year ago. Company headquarters are in Westboro, Mass.

Light Metal Fabrication

PORLAND—Light metal fabrication operations are now under way at the Willamette Manufacturing & Supply which recently opened facilities at 123 S.W. Clay St.

American Truck Factory

PORLAND—A new \$70,000 factory has been constructed by the American Truck Equipment Co. at 5525 S.E. 28th Ave.

Jarman-Williamson Warehouse

PORLAND—Jarman-Williamson Co. has completed a \$20,000 warehouse at 535 N.E. 28th Ave.

Here's an Excellent Shortcut

Cleaning, derusting and descaling —in one alkaline tank

Oakite Rustripper saves time in plating shops by removing heat scale and rust in the same operation that removes oil. Alkaline pickling with Rustripper avoids hydrogen embrittlement, etching of machined surfaces and other disadvantages of acid pickling.

FREE For your copy of "Here's the best shortcut in the field of electroplating" write Oakite Products, Inc., 1001 E. First St., Los Angeles 12, or 681 Market St., San Francisco 5, Calif.

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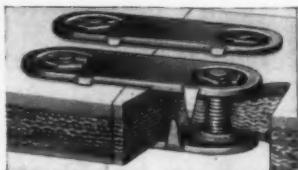
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110

FLEXCO BELT FASTENERS and RIP PLATES



FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH



Compression Grip distributes strain over whole plate area

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
- ★ Trough naturally, operate smoothly through take-up pulleys.
- ★ Distribute pull or tension uniformly.
- ★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.

Order From Your Supply House. Ask for Bulletin F-112

FLEXIBLE STEEL LACING CO.
4642 Lexington St., Chicago 44, Ill.

...for more details, circle No. 106 on Reader Service Postcard

WESTERN INDUSTRY — October 1957

Pacific Scientific Aeroproducts Plant

ANAHEIM, CALIF. — Pacific Scientific Aeroproducts has completed its new \$500,000 plant and is producing precision aircraft components such as cable tension regulators, guidance and control systems and its new aircraft restraint system.

According to *Leo Pfankuch*, executive vice president, the new 50,000-sq. ft. structure houses an ultramodern manufacturing facility, engineering dept., general offices and a dust-free instrument assembly area.

Tube-Strut Corp. Set Up to Handle Clamps

LOS ANGELES—Tube-Strut Corp. is a new corporation formed to handle the manufacturing and sales of Tube-Strut clamps. The new organization has been established to increase the national distribution network.

Officers of the new corporation include *Marvin M. May*, president; *George M. Adler*, vice president and general manager; and *Harry Weinstein*, vice president of sales. The company is presently making plans to develop an entirely new industrial market for their clamp and new products for the material handling field.

P-I-E Moves Offices to New Location

OAKLAND, CALIF.—Pacific Intermountain Express will move its general offices to a three-story building at 1417 Clay Street. Move will be complete by January 1.

The old Taft & Pennoyer department store building will be completely modernized and will become known as the P-I-E building.

Furane Plastics New Div.

LOS ANGELES—A new division has been formed by Furane Plastics, Inc., to sell its many adhesives and sealants. This Adhesive division will provide field service on the wide applications of adhesives.

STANLEY

SCREW DRIVERS

IN STOCK AT

HOWARD

SUPPLY

CO

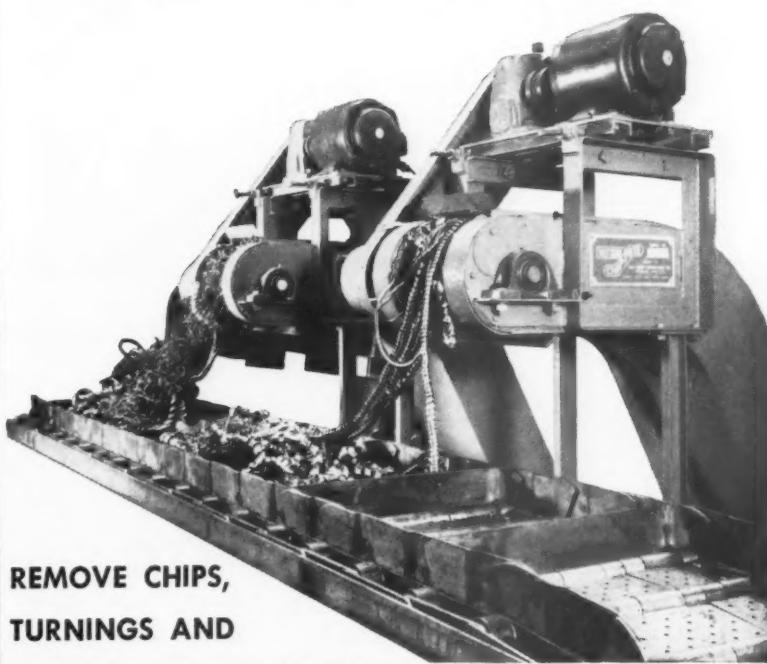
M P A N Y

...for more details, circle No. 107

WESTERN INDUSTRY — October 1957



That's right! The May-Fran CHIP-TOTE permits the continuous operation of machine tools by eliminating down-time for scrap removal . . . skilled workers stay on the job . . . production increases by as much as 20%! Versatile CHIP-TOTE conveyors are available in a wide range of sizes to serve practically any type or size of machine tool. Conveyor speed is adjusted to meet the scrap removal needs of the machine.



**REMOVE CHIPS,
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WITH A **MAY-FRAN CHIP-TOTE****

Write today for your copy
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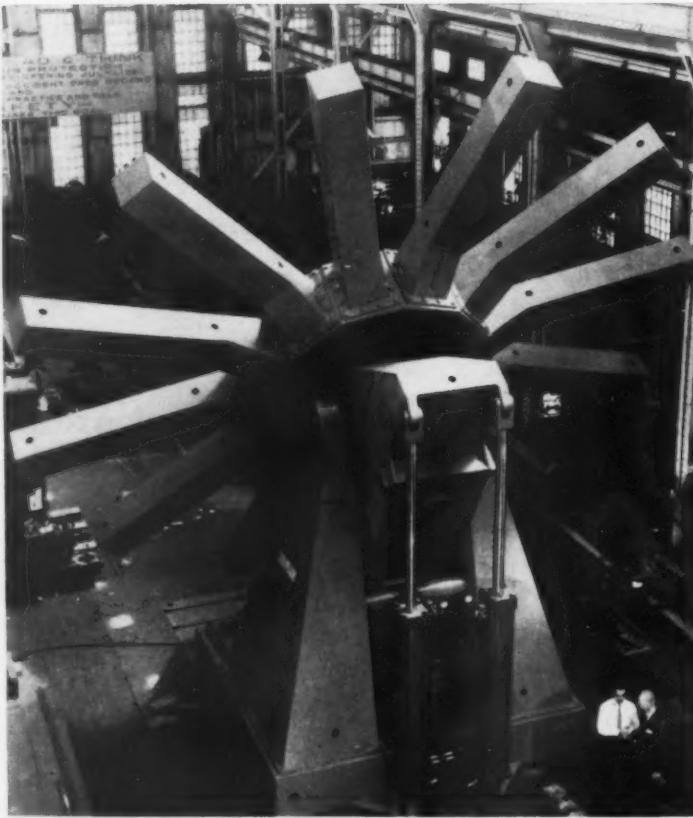


MAY-FRAN

ENGINEERING, INC.

1771 Clarkstone Rd. • Cleveland 12, Ohio
...for more details, circle No. 108 on Reader Service Postcard

Largest machine of its type



THIS HUGE WELDING POSITIONER—the largest machine of its type in the world—was built at Bethlehem Pacific's San Francisco shipyard. It will be used at Mare Island Naval Shipyard for holding extremely large units in place while they are welded automatically. Weighing 100 tons, the positioner has an overall height of 20 ft., 10 in. Its table has a diameter of 33 ft. By means of a 2,000-lb. hydraulic system, operating the two plungers shown in the photo, the table can be tilted to any angle up to 60 deg.

Kaiser to Sell Hardboard Products

FOREST GROVE, ORE.—Sandalwood and other fine hardboard products manufactured by Forest Fiber Products Co. will be given greater distribution in the 11 Western states.

An agreement has been signed by the Oregon firm with Kaiser Gypsum Co., Inc., of Oakland, Calif., naming Kaiser as supplemental sales agent in the 11 Western states.

Hercules Powder Adds to Facilities

HERCULES, CALIF.—Hercules Powder Co. has started construction of facilities to produce 10,000 tons per year of urea. Anhydrous ammonia and carbon dioxide, both currently produced at the plant, are necessary raw materials.

Completion of the urea facilities is expected by late 1958.

Rawlins Bros. Buys Solar Steel Operation

LOS ANGELES—Active ownership of the Solar Steel Corp. Western operation has been assumed by Rawlins Bros., Inc.

The new steel department will continue to offer a complete line of steel products and processing services. In addition, a new will-call service counter for steel or grinding orders will be instituted.

Ideal Cement Acquires NW. Portland Cement Co.

DENVER, COLO.—The Ideal Cement Company has authorized an agreement to acquire the entire business of Northwestern Portland Cement Co. of Seattle in a stock transfer.

The Northwestern plant is presently rated at 600,000 barrels annually. But a program is under consideration that could increase this by about 50%.

McCracken Machine Works

PORTLAND—A \$14,500 addition has been built on to the machine shop of McCracken Machine Works, Inc., at 2335 N.W. 29th Ave.

ACCO's Great Chain...

ACCOLOY X-WELD 125

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ACCO
for Better
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THE SECRET
IS IN THE WELD!



ACCOLOY X-WELD 125 has 2 1/4 times as big a welded area as possible with other welding processes. This means more than double the security at the weld.

NOW—a chain with welds as strong or stronger than the material—welds with projecting lugs that prevent kinking! **Accoloy X-weld 125** Chains hang straight as a die. Each link is perfectly formed.

ACCOLOY X-WELD 125 CHAINS are ideal for slings, bundling, towing, boomer, utility chains. Can be furnished in special analyses and heat treatments. Available in $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{5}{16}$ ", $\frac{3}{16}$ " and $\frac{1}{8}$ " sizes.

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SAN FRANCISCO OFFICE • 890 Tennessee Street



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AMERICAN CHAIN & CABLE

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Simplex
Ball-Bearing
Screw
Jacks



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SUPPLY
COMPANY

...for more details, circle No. 110

Ling Electronics Opens New Plant

LOS ANGELES—Expansion plans have been completed by Ling Electronics to move into a second new plant. The new buildings, located on a 150,000-sq. ft. site in Culver City, will house administrative, engineering and sales, as well as additional manufacturing, facilities.

Plans call for two buildings, approximately 40,000 sq. ft. Ling Electronics specializes in the design and manufacture of high-power electronic equipment.

Trailer Company to Locate in Fresno

FRESNO, CALIF.—Independent Metal Products Co. of Omaha, Neb., a division of Fruehauf Trailer Co., will spend more than \$1,500,000 to establish a truck tank trailer factory on Florence Ave.

The plant will employ from 125 to 150 persons initially. A planned maximum employment of 400 is seen.

Shell Reorganizes Development Division

EMERYVILLE, CALIF.—In order to segregate oil process development and chemical development and to simplify liaison with Shell Oil Company and Shell Chemical Corporation, a reorganization of

Shell Development Co.'s development division has been announced.

In the reorganization, *C. L. Raymond* will direct activities of the chemical separation, chemical reaction process, experimental plants and chemical process engineering departments. *M. Souders, Jr.*, will direct the activities of the chemical engineering, physical chemistry, oil reaction process and oil process engineering departments.

Green-Penny Co. in Third Expansion

EAST LOS ANGELES—In its third expansion move in 13 years, Green-Penny Co. will more than double its present warehouse and office space by constructing a 28,000-sq. ft. building on 1½ acres of land at 4180 East Noakes St.

Green-Penny Co., distributor of industrial equipment, is scheduled to move into the new quarters around Nov. 1. Building and land represents an investment of \$275,000.

Metropolitan Supply Moves into New Home

MONTEBELLO, CALIF.—The Metropolitan Supply company has moved into new quarters at 1153 South Greenwood Ave. The 30,000-sq. ft. building is located on a 1½-acre site.

Metropolitan Supply Co.—now 40 years old—represents manufacturers of pipe, valves and fittings.

New Pulp and Paper Mill

ATTALIA, WASH.—The Boise Cascade Corp. will construct a 150-ton pulp and paper mill and kraft container plant here. The pulp and paper mill will operate under the name of *Columbia Kraft*, while the container plant will be known as *Columbia Container*.

Dole Hawaiian Stresses Engineering

SAN JOSE, CALIF.—Dole Hawaiian Pineapple Company and its subsidiaries have launched a program designed to give increased emphasis to engineering services.

The new staff services will embrace areas such as plant equipment, plant layout, processing methods, new process development and industrial engineering. Vice president *George W. Burgess* will head up the new activity.

Trade-Wind Fans Moves Into New Building

RIVERA, CALIF.—A new \$225,000 plant addition has been occupied by Trade-Wind Motorfans, Inc., manufacturers of kitchen and bathroom ventilators.

This is the second major addition in the past three years and increases present floor space by 41,000 sq. ft.—a 75% increase over existing facilities built in 1954.

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Complete manufacturing facilities within
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Made of every metal or alloy that
can be cold-formed . . . available
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WESTERNERS AT WORK . . .

Kaiser Aluminum & Chemical Corp., Industrial Div.

... announces two key production management appointments. *Arthur H. Branstad* has been designated as manager of sheet and plate, and will direct production facilities including the company's new rolling mill being constructed at Ravenswood, West Virginia, and the rolling mills at Trentwood, Wash., and Permanente, Calif. He will also be responsible for the sale of sheet and plate products. *William J. Edmunds, Jr.*, has been appointed manager of extrusions and forgings, and will direct the operation of the company's two extrusion plants and a forging plant in the East. Edmunds most recently lived in Orinda, Calif.

Geo. M. Prescott Co.



F. C. Rogers
... appoints *Francis C. Rogers* as manager of engineering and manufacturing to take over the Alhambra, Calif., company's expansion program in the production of material handling and processing equipment, as well as special fabrication. Rogers for 15 years was chief plant engineer for the A. O. Smith Corp. of Los Angeles.

Beckman & Whitley, Inc.

... has divided its operations at San Carlos, Calif., into two independent divisions—Missile Products and Instrument. Newly appointed manager of the Missile Products Division is *E. William Place*, who was former product manager for missile devices. General management of the Instrument Division will be in the hands of *John C. Beckman*, co-founder of the firm.

W-S Fittings Div., H. K. Porter Co.

... has moved *James H. Wyres* from his position as district manager for West Coast sales in Los Angeles to become sales manager of the entire W-S Fittings Division.

Ford Motor Co.

... has moved *Melville B. Bowman, Jr.*, from his former position as assistant manager of the quality control department to new responsibilities as superintendent of the passenger body department. He succeeds *Alvin J. Layman*, shifted to the quality control department as an engineer.

Leadlight Fixture Co.

... names *George E. Mitchell* as sales engineer for the San Francisco Bay Area, merchandising the firm's line of commercial light fixtures.

Armco Drainage & Metal Products

... names *Max Bailey* as sales manager of its Calco Division. With Armco since 1948, joining the firm at Middletown, Ohio, Bailey was transferred to the West in 1952 as welded pipe sales manager for the firm's Calco, Rocky Mountain and North Pacific Divisions, and he most recently has served as division engineer for the Calco Division and district sales manager in Northern California and Nevada. Replacing him in the latter position is *Howard Blower*, who most recently was division engineer. The moves are designed to round out complete sales coverage in California, Arizona, and Nevada.

Consolidated Electrodynamics Corp.

... designates *A. P. Stuhrman* as manager of the central manufacturing division. In his new post Stuhrman will direct all activities of the division, which operates principal manufacturing facilities at the company's main Pasadena plant and subsidiary facilities in El Monte, Calif.

Narmco Manufacturing Co.

... now has *Luther C. Ringer* as production manager for its plant at Costa Mesa, Calif., which is engaged in the manufacture of light-weight aircraft, missile and commercial structures. Since 1951, Ringer was in charge of aircraft and auto body production at Chrysler Corporation's Western division in Los Angeles.



L. C. Ringer

Ultradyne Engineering Labs., Inc.

... has positioned *Carl K. Hoffman* as works manager for all manufacturing operations at the firm's Albuquerque plant. Hoffman, formerly manager of the tool division of RCA, specializes in streamlining production techniques and has set up improved systems of manufacturing for several of the firms for whom he has worked.

Cannon Electric Co.

... appoints *Alden C. Olsen* as sales manager of its Los Angeles division, to coordinate and direct all sales activities for Cannon Electric west of the Mississippi. Previously, he was Cannon's distributor sales manager.

Moffett Engineering, Inc.



P. V. Hyland

... manufacturer of overhead cranes and other material handling equipment at Albany, Calif., has appointed *Paul V. Hyland* as Southwest sales representative, covering So. Calif., Arizona, Nevada, Utah, Colorado, New Mexico, and Texas. Hyland, who recently joined Moffett, has been in

the crane business since 1925, and was most recently general sales manager for the fabrication division of Kaiser Steel Corp.

Disston



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- **BLYSTONE EQUIPMENT CO.**
2649 West First Street
Santa Ana, California
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RIDGELY K. DODGE
6767 Broadway Terrace • Oakland 11, Calif.
Olympic 2-7237

Hyster Company



F. S. Gibbs

... announces that *Fred S. Gibbs* has joined the firm as a material handling sales engineer to cover the eastern section of the Los Angeles metropolitan area, plus Riverside and San Bernardino counties. Gibbs has an extensive background in industrial sales, has been with Fairbanks Morse & Co. for ten years merchandising material handling scales.

Westinghouse Electric Corp.

... appoints *Edward E. Lacy* as Pacific Coast manager of machinery electrification, succeeding *Charles E. Hammond*, who becomes assistant manager of the firm's South Pacific apparatus district. Lacy, most recently area sales manager for the South Pacific District in Los Angeles, will make his headquarters at 410 Bush St. in San Francisco.

Trent Tube Co.



R. K. Dickson

... has placed *Richard K. Dickson* as general manager of the company's new plant at Fullerton, Calif. He has been chief metallurgist at the home plant in East Troy, Wis. The Western facility will operate as a division of the main plant of this wholly-owned subsidiary of Crucible Steel Co. of

America. Among the principal customers in the West for products of the new plant at Fullerton—the firm's patented Contour Trentweld stainless steel and high alloy pipe and tubing—are the aircraft, missiles and special processing industries.

Great American Industries, Inc.

... designates *Willard W. Ruppel* as Western regional manager. Ruppel will head a Western regional office for GAI in San Francisco. The office will serve California and parts of Oregon and Washington as liaison between the operating division of Great American and the distributors of the various products manufactured by these divisions. Offices will be located in the Tilden Sales Building. GAI product line includes material handling equipment and wheeled products of Colson Corporation and cellular rubber products fabricated by the Rubatex Division.

Dalmo Victor Co.

... Belmont, Calif., assigns *Albert J. Seifert* to the newly created post of manager of manufacturing engineering. Seifert will be responsible for coordinating activities of the methods, application, and tool design and control sections of the manufacturing department.

Coyne Cylinder Co.

... names *Carl A. Boller, Jr.*, a newcomer with this manufacturer of acetylene cylinders but well known in business in the San Francisco area, as Pacific Division manager, with headquarters at Coyne's San Francisco office, 200 Paul Ave.

CLASSIFIED SECTION

Space is sold as advertisers' inches. All advertisements in this section are $\frac{1}{4}$ inch short of contracted space to allow for borders and composition. Rates are \$12.00 a column inch. Copy should be sent in by the 25th of preceding month if proofs are required; by the 28th if no proofs are required.

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PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

Collins Microflat Co.

... as part of an expansion program, appoints *Al La Com* as general sales manager. La Com from previous experience has a broad knowledge of granite surface plates and their sales. A new plant for the production of Microflat plates has just been completed in the Hawthorne industrial area near El Segundo and Crenshaw boulevards.

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LEASE OR SELL IN THE CITY OF SONOMA

Beautiful concrete block building, 5000 sq. ft. on approx. 1 acre with 6 ft. cyclone fence, paved yard, loading area. Addl. 25x75 carport and whse. Wired for 110-220 3 phase. On NWP railroad. 1 hour drive to bay area. Lease \$375 per mo. or sell for \$39,500.

VALLEY OF THE MOON REALTY
222 W. Napa St. Sonoma. Phone WE 3-5545

For Sale

"One Used Transtacker Fork Lift Truck, 69" Lift, 640 lbs. Capacity, 36" Tapered Forks, Walkie-Type Battery Powered, Hydraulic Lift complete w/Battery & Charger. Price \$1,750.00, F. O. B. Spokane, Washington. This equipment was purchased new in 1954 and is in excellent condition. Present replacement cost is from \$2,800.00 to \$3,000.00."

Neil Distributors, Inc.
No. 210 Ralph Street
P. O. Box 1451
Spokane 10, Washington

W. S. Shamban & Co.

... announces the appointment of *Carl K. Wolff* as Western regional sales manager. Wolff, formerly senior sales engineer and division product coordinator of the National Seal division of Federal-Mogul-Bower Bearings, Inc., will make his offices at the Shamban plant in Culver City, Calif. Shamban manufactures Teflon and Kel-F products.

ADVERTISERS

in the October 1957
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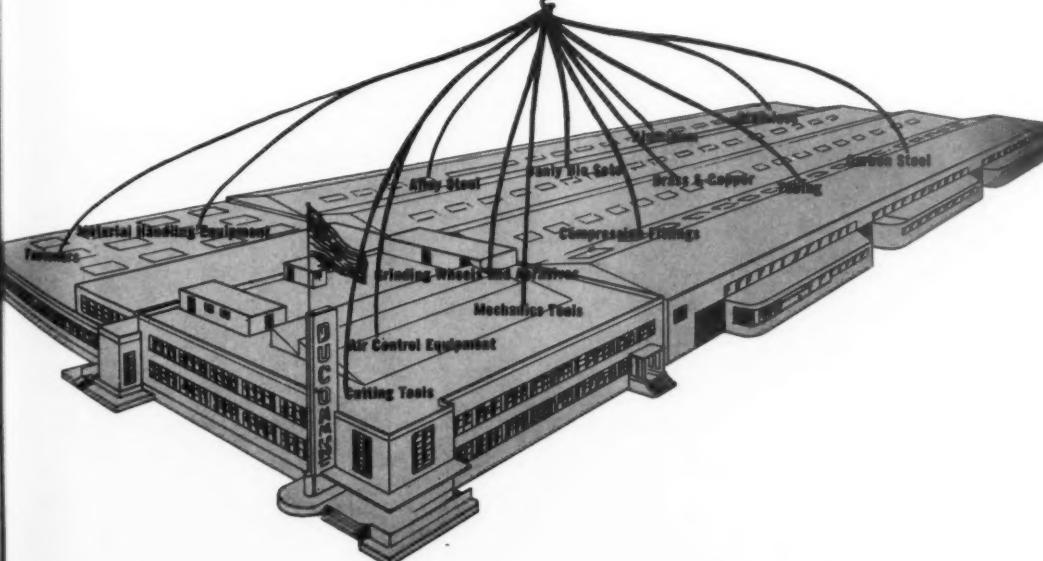


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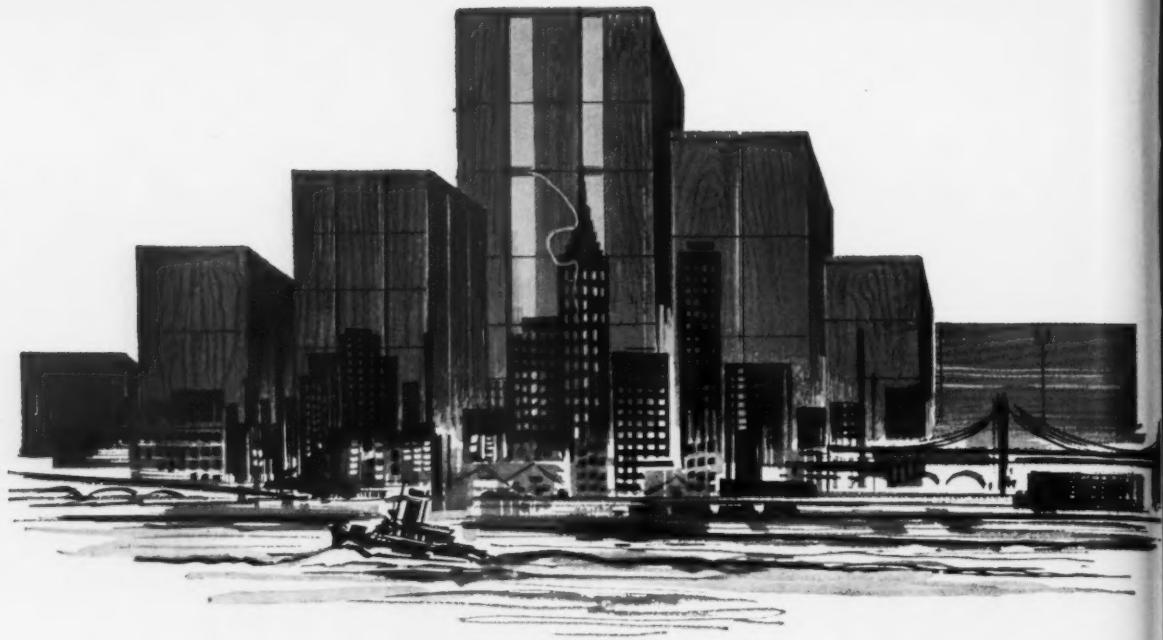
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